The Agreement of Science and Religion.

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SCIENCE AND RELIGION,

EXPLAINED FOR THE PEOPLE,

BY

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"TEACHING TRUTH BY SIGNS AND CEREMONIES," "THE FESTAL YEAR," "THE GREAT CATHEDRALS OF THE WORLD," "THE SEVEN GATES OF HEAVEN," ETC., ETC.

"The proper study of mankind is man."—*Pope.*
"What is man that thou art mindful of him?"—*Psalms.*
"That I may know Thee O Lord, that I may know myself."—*St. Augustine.*
"There is an image of the Trinity in reasonable creatures, but a likeness of the Trinity in other creatures."—*St. Thomas.*

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PREFACE.

At creation, God stamped his image and his likeness on every being which he made. Each thing created is, therefore, like unto God. From that it follows, that the universe is a vast poem, a wonderfully written book, a sublime series of symbolic figures, tropes, and images of the Deity. Every existing being and reasoning creature, by its very nature, eloquently proclaims the glories of the Godhead, who made it like unto Himself. Nature, therefore, is an open volume wherein we study God. The Reason, the Plan, the Model, the Original, according to which each creature was made, is the divine Word, the only-begotten Son of God.

God first made the four great kingdoms of minerals, vegetables, animals, angels, and then he united those in one creature, man. Man is, therefore, the sum total of creation, the resume of nature, the Mirror of the Universe. Therefore, in studying man we study both nature and God.

In treating of man we will study his nature, see what he has in common with creatures, both below and above him, and then trace each human perfection and quality till, at last, we find it infinite in God. This is the only way to get a complete knowledge of the world and of its Creator.

The learned, especially the scientists, accustomed to start from unsound principles relating to nature, to man, and to God, began to think that science and religion disagreed. That opened the flood-gates of infidelity, and for generations afflicted society, threatening the stability of

law, order, authority, government, religion. The belief in the spirituality and immortality of the soul, the idea of the spirit world, the faith in the existence of God, became weakened, and dire calamities threatened the human race, for the wildest theories, in our day, have many followers.

A powerful voice tells us to come back to the writings of the Scholastics, wherein alone we find the true principles of science and of religion, and wherein we see how beautifully they harmonize.

A subject, so vast and comprehensive, required long years of study, meditation, and investigation. To make it better understood by common people, we have left out all technical terms or learned words, and we tried to write in the simplest English; so as not to too much tax the memory, we have sometimes repeated what we had written before.

The duties of a large parish have somewhat interfered with our work, but we hope our feeble efforts may, at some future time, rouse a gigantic genius, greater than S. Augustine, S. Thomas, or Aristotle, who, in a vast work, will make use of the wonderful scientific discoveries of modern times, and graft them all into a cyclopedic treatise on nature, man and God.

If there be anything in this work contrary to the teachings of Christianity, we will be the first to condemn it. But we trust that it will show all who read it that there can be no disagreement between science and religion.

JAS. L. MEAGHER.

Cazenovia, N. Y. Sept. 1, 1887.

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INTRODUCTION.

In modern times infidelity, like a many-headed monster, lifts its many, slimy, disgusting forms and attempts to deny not only religion, but also the very belief in the existence of God, the Creator of the universe. Many think that science and religion do not and cannot agree. That is because they are not deeply learned, both in religion and in the sciences, for the one who understands both can see the remarkable agreement between science and religion. In fact, science is the handmaid of religion, and the truths revealed by God to the human race find many a startling proof in the modern sciences, showing that God speaks to the human mind both in revelation and in science, which tells of the wonders of God in nature.

There are, then, two great books for man to read: one, revelation—the Bible explained by tradition—the other, nature explained by the true principles of science. In one God speaks direct to the human mind and lifts the veil which hides his infinite perfections; in the other the great Creator hides himself behind the numberless creatures with which he peoples the universe. For some time scientific men acted and wrote as though these two great books, written by the finger of God, contradicted each other. But that came from their imperfect knowledge of nature, from their incomplete knowledge of revelation, or from both. After deeper studies in the rich mines of nature, and after deeper scientific investigation, the true scientist finds startling proofs of the truth of religion, and as science is more and more developed, and the more the human mind grasps the wonders of science, the more we are startled at the harmony of science and religion.

We read that in the beginning God created the angelic spirits of the kingdom of heaven, then the mineral kingdom, afterward the vegetable kingdom, and lastly, the various species of animals. All creatures, then, thus far created, belonged to either of these four great kingdoms—angels,

minerals, plants, animals. Then he seemed to stop and to consult with himself and said: "Let us make man to our own image and likeness." And he made man as a mixture and a compound and as an abridgment of all these four kingdoms. In his bones, muscles, and in the materials of his body, man belongs to the mineral kingdom; in growth, nourishment, and reproduction, he belongs to the vegetable kingdom; in sensation, in the nervous system, and in the five senses, man belongs to the animal kingdom; and in mind and free will he belongs to the angelic kingdom. Thus, these four great divisions of creation make, as it were, a great four-sided pyramid, with man at the head, as the culminating point of the universe. Well, then, the wise men of Greece call man "a little universe," for he is the culminating and completing point of all creation. We contain within ourselves the perfection of all creatures. In a higher degree in us we find the beauties and the wonders of all other creatures.

Man, then, is the end of all creation on this earth. Therefore, when Christ took our human nature, when he united himself with a body and soul of the human race, he in himself raised all creation to the throne of the Divinity. Every rock and stone, every sun and planet, every tree and vegetable, every beast and animal, every angel and pure spirit bowing before God's throne, finds his own perfections in a more perfect manner, or in the same degree, in the soul and body of Christ in his humanity united with the Second Person of the Trinity. The incarnation of the Son of God, then, is the acme and the completion of the universe. The minerals forming the non-living world, the plants which clothe the earth with beauty, the animals which sport in joy upon the surface of our planet, the angels who fold their bright wings before the Almighty, all unite in man, and all are deified in that body and soul of Christ now sitting at the right hand of the Eternal Father. God made all things as the images of his own infinite perfections and he raised all again to himself in the wonders of the union of God and man, in that espousal of the human and Divine natures in the Son of God. Then the Son of God is the Divine plan of the universe and he brings all back again to himself in the wonders of the Incarnation. Then Christ, whom the Christian adores, is not only Divine, containing within himself the perfections of the Divinity, but also human, possessing in his human nature the perfections of every creature. Thus in him centres the glories of the Godhead and the perfections and the beauties of all creation.

Christ as God is the Splendor of the Father, the Figure of His Divine substance, the Truth of the Divinity, the Plan of creation, the eternal Type of each created being, the Model of each creature and the everlasting Thought of the Father. Christ as man is the perfect man, the faithful Adam, the Father of believers, the Fruit of the earth, the Perfection of creatures, the Compendium of the universe.

Every creature, from the smallest grain of sand washed by waves of ocean, to the most mighty sun and planet swinging round the heavenly spaces, from the lowest microscopic plant and creature, to the brightest angel ministering before the throne of the Almighty, all are as so many types and figures of the perfections existing in the Eternal Mind. As the architect, before setting to work to build a noble palace, first conceives and brings forth the plan in his mind, and, according to that plan, he shapes his figures, lays down his foundation and raises his edifice, so during eternity in the mind of God dwelled the Figure of creatures, the Plan of creation, the Type of all which he has made. That was the Son, the Word of God. Then, creatures are so many external expressions of the Divine Son, who is the mental Word of God. These types or plans of creatures dwelled from eternity in the mind of God, and in creatures they are so many revelations of Him who "in the beginning was the Word and the Word was God." As in our minds every idea is a mental word, so these perfections we see in nature are but so many external, crude, created, and material expressions of the types and plans, eternal, infinite, and universal, in the mind of God. As the words in this book are but so many types and external figures of the ideas in my mind, so all creatures are so many expressions of the mind of God, the Great Architect and Builder of nature. Nature, therefore, is a great book of poems, wherein God has written, not in cold, dead letters, as man writes, but in living, moving creatures; each being is a letter, each species a paragraph, each family a chapter, each genera a treatise. Nature, then, is the great book of God written by His Almighty hand, the crude external expressions of the perfections of his own eternal Son. But nature is not God. That is the error of the Pantheists, who say that nature is God. For God is unchangeable, eternal, almighty; greater than anything we can conceive, while nature is changing, finite, weak, bounded.

In times long past the learned men of pagan Asia, struck with the varied beauties of nature, seeing dimly in the beauties, the perfections and the harmonies of nature, the reflections of

the face of God, taught that nature is God, that everything we see is a part of God, that from his own substance, God created the world, and therefore everything we see is a part of the Divine Nature. Whence nature being God, nature was to be worshipped. From that rose idolatry, the adoration and the worship of creatures. For the pagan idolater will tell you that he worships, not the creature, the image or the animal, but the perfection of God which these creatures represent. Such is the pantheism of olden times, and many scientific men of our age would bring us back to this idolatry and throw aside the Christian civilization of twenty centuries.

The world, then, is not God, but it was created by Him after the types eternally existing within the Divine Word, the Son of God.

Man also contains with himself the types and perfections of all beings below him. In his body he has in an eminent degree the minerals, the vegetables, the animals, and in his mind the angel. In his soul and body he combines the perfections of all these. For that reason we love the figures, types, tropes, symbols and images of poetry and of oratory. Poetry is the art of speaking to the mind in measures and in figures of speech. It is stronger and more beautiful when written in regular rhyme, rhythm, and in measures and figures true to nature. Oratory is the art of convincing others. It also is convincing and striking when composed of tropes, symbols, and figures. Why are the figures of oratory and the stately rhythm of poetry so beautiful? Because the perfections of all creatures below us are contained in a higher way or degree in the human soul, and these figures of speech with gentle touch play on the hidden harp-strings of our souls to rouse them to accord and echo back the beauties of the God of nature. Thus, as God contains, in the most eminent and perfect manner, the perfections of the universe, so the soul of man contains in a degree, unites in itself, the perfections of all nature. Well, then, can we say that the human soul is made to the image and likeness of God. To know God thoroughly we must study science and revelation. Science, therefore, tells us of God and of man, the most perfect image of God, while revelation confirms and strengthens science. The following pages will unfold the beauties of the world, of the wonders of man, and will lead us back again to God, the Creator and the Maker of all things. We will begin with the lowest creatures, study their perfections, and then trace those perfections up, in

creatures above them, till we find all infinite and eternal in God, whose praises continually the perfections of the universe proclaim.

Behind and under, and as the foundation of creatures, we find the Beautiful, the True, and the Good. The True is that which is, and the false is that which is not. A thing is beautiful when it is perfect according to its nature. To be beautiful, therefore, it must be true. Whence Plato says that beauty is "the splendor of the true." A thing also is good when its utility is perfect, and a thing to be perfect must be true. Therefore, the Beautiful and the Good are founded on the True, and the latter is the Perfect. Truth, therefore, is eternal and everlasting. What is this perfection on which the True is founded but God? Therefore the Beautiful, the True, and the Good which we find stamped on every creature is the Trinity of nature, the image of the Triune God of nature.

Beauty, Truth, and Goodness shine forth throughout everything within the confines of creation, and in every part of the universe. They are the images of the face of God. Here are three revelations of the True, Beautiful, and Good, God in nature. In God everything must be perfect, for he is infinite in every degree. Then in him Beauty, Truth, and Goodness must be infinite and omnipotent like himself. As God is a reasonable being, so he also must have every perfection of a reasonable person. Therefore, Beauty, Truth, and Goodness must be in him so many Persons. In him Beauty is the Father, Truth is the Son, and Goodness is the Holy Spirit. Therefore, these three, which shine forth in all creatures, are so many revelations of the Trinity throughout nature.

The True, which is the foundation of the Beautiful and the Good, is found stamped on every creature. The sciences of the True, which we in thought abstract from nature, is called Mathematics, from the Greek word meaning learning or science. No series of Truths is purer or truer than the science of mathematics. They are the purest reasonings we have. They treat of the True in its most abstract forms. That part which treats of numbers is called Arithmetic, from the Greek meaning a number. The part which treats of the relation of numbers by signs and unknown quantities is called Algebra, from an Arabic word meaning to join together. Geometry, from the Greek meaning to measure the earth, treats of surfaces, angles, lines and solids. Trigonometry, as the two Greek words mean, treats of the meas-

urement of triangles. Conic Sections tells us of the qualities of a cone, while the highest forms of computing is called Calculus. This branch of mathematics was largely discovered by Leibnitz and Sir Isaac Newton. Each year adds new discoveries to the various branches of mathematics, showing that it is a series of truths exterior to man and founded in nature. In reality we may say that all nature and all sciences are founded on mathematics, and man is but searching and discovering the secrets God planted in nature, each time he makes a discovery in the sciences. All scientific investigators are reducing the discoveries of modern times to mathematical formulas. This shows that at creation God himself, as a wonderful Mathematician, presided over the formation of all things he made.

Thus in chemistry the atoms and molecules, in forming new substances, or developing into new materials, all act according to formulas which never change. They are expressed by unchanging signs and numbers. All bodies, as well as light, heat, and magnetism, attract and act according to the inverse ratio of their distance. The sun and planets move in circles; the whole mineral kingdom acts according to the strictest mathematical laws. Thus they show that a great and wonderful Mathematician from the beginning presided over creation and still presides over the movements of creatures. All things act according to the most surprising harmony, and law and order shine everywhere throughout the universe. There can be no law without a law-giver. That is plain and evident to any one. Who upholds law, and order, and harmony, but God? Therefore, God is the Architect of the universe. He is the Mathematician of nature. He directs all movements in the universe. He is the Author, the Creator, the Prime Mover, and the Upholder of all things. This we must admit. For the order and harmony of the universe everywhere shows such astonishing wisdom that it is nonsense to call it nature, as we so often hear. It is not nature but the God and Creator of nature who works those wonders throughout the universe. All breathe forth the beauties and the perfections of God. We are not, therefore, surprised to find the mind fascinated with the study of science, for there we learn the wonders of God revealed in nature. For nature, as in a mirror, reflects the face of the Divinity, and shows us dimly the wonders of the Creator God.

Mathematics are eternal and everlasting, both in the past and in the future. Take as an example the multiplica-

tion table. It was true in the past and unto eternity it will be true in the future. It is, then, eternally true. The eternal is stamped upon it. What, then, is it but a figure of the face of the True Eternal himself. Thus every truth of mathematics is a natural revelation of God. Whatever exists or is possible is true. Therefore, the true is divided into two great classes, the possible and the existing. The possibilities of things which might exist are infinite in God. They are the types of things which could have been created, but which were not. They are in the Eternal Mind, for God alone is strictly infinite. No creature can be infinite, that is boundless in every respect. That is one of God's attributes.

No being which exists in the possible and before it really exists can act, because to act it must first exist. Therefore, nothing can create itself. Each creature must have a Creator. The world, then, could not have created itself, for then it would have to have acted on itself before it was created, which is absurd. The Creator, in bringing creatures into being, made them according to the plans and types already existing from eternity in his own infinite Son. They are so many revelations of the Son of God, whence they are all made according to certain types we call classes, species, families, kinds, and genera. These are the universals, according to which each individual creature is made. These species and genera are found individualized and single in each member, while the species is in the universal type found eternal only in the Son, generated from the mind of God. These species cannot change. But the individuals can change and form new species. But the types of these new species were already existing eternally in the Son of God, for infinite is the number of types and species and genera in the mind of God, from whence the Divine Son is now and ever will be generated.

The individuals of each species, although belonging to and having the general outlines of the species to which they belong, are not exactly alike in every respect. No two individuals of any species of creature are exacty alike. They differ; not only that, but God never makes any two creatures exactly alike in every respect. There is always a difference. Thus no two men, no two animals, not even any two grains of sand are ever exactly alike. This shows the infinite variety of types and species in the Eternal mind.

Lamarck first in France and afterwards Darwin in England, claimed that by natural selection animals and plants,

through a long course of ages, guided alone by the forces of nature, by natural law rose unaided through the various kinds of plants and animals, till at last all culminated in man. That is the doctrine of evolution according to Darwin. God himself sowed the first forms of life upon this planet in the early mornings of creation. But Prof. Haekel of Jena claims that by spontaneous generation the forces of the mineral kingdom, unaided, produced the lowest forms of life and thus all living creatures are but the result of physical or mineral forces, acting on atoms and molecules, as he says, "placed together in the most varied manner." This is the very worst form of infidelity, for it throws overboard, at one sweep, God, the existence and the immortality of the human soul, the belief in future rewards and punishments, and the sweetest aspirations of the human heart, yet, by a strange fatality, those doctrines, false from the very root, have spread everywhere among scientific men and are openly taught in many of the great universities of the world. What is the cause of this strange fascination ?

In early days, when the ancient Greeks laid down the true principles of human knowledge, when Plato and Aristotle taught their great generalizations, which they received by tradition from the wise who lived before them, the civilized world bowed before those master minds. The great Augustins, Chrysostoms, Bazils, Cyrils, Bernards, and the Scholastics followed the Stagerite, and the mastery of man over the secrets of nature and over the knowledge of himself made sure and solid headway. As the early ages of Christianity rolled by, suddenly above the horizon of the world's knowledge rose that sun of intellectual light, Thomas of Aquinas, appropriately called the Angel of the Schools. He appears to reflect the very rays of Divine Wisdom lightening up the darkest passages and most difficult by-paths of human wisdom. He digs the precious gold from deep mines of wisdom, both pagan and Christian. Every sentence he wrote flashes forth as a glittering diamond in costly setting. He sums up all the fundamental principles of human knowledge in that master work and culminating point and summit of human wisdom, his Summa Theologica. Every question, every point of human and Divine knowledge, even every objection which can be brought against religion and against God, is found there, and the answer, all complete and perfect. He appears to have had an eagle eye, and to have been, by some mysterious way, warned of modern infidelity, and he wrote six hundred years ahead of his age.

By a strange fatality Voltaire and his followers stole the objections against our religion from the writings of these great masters, and without giving the answers, they scattered them broadcast to poison the intellect of man. Whence in modern times every point of doctrine is attacked. Schools of philosophy, vague ideas of man and of his destiny, of the world, of its creation and object, are scattered broadcast over the world, and the mind, made to seize truth, finds only the husks of error and the chaff of deception to satisfy its ceaseless cravings after something higher and better. This poisoned, mirey flood of error has penetrated the halls and class-rooms of our greatest colleges and universities, and is openly taught by our best professors. The belief in the existence of God, the immortality of the soul, the spiritual and unseen world around us, is weakened and the bonds uniting them are broken, and immorality, dishonesty, and crime are on the increase. We must come back to the science of the men of old, who gathered up the traditions of the past. We must lay down the true principles of science and show the various relations of the different sciences one to another and how all combine to a better understanding of ourselves and of God.

But let us continue the explanation of the foundations of science and religion. The grouping together of a great many principles so as to form one whole, is called synthesis, from the greek meaning placed together. The separation of each question and the treatment of each separately is called analysis, from the Greek signifying loosened or dissolved into its component parts or elements. The consideration of man in his different parts as a living body and soul is called anthropology, from the Greek meaning the science of man. The science which treats of animals is called zoology. The knowledge of the living animal is named physiology, from the Greek meaning life. The study of plants goes under the name of botany, from a Greek word signifying a plant. When we study the bones, muscles, and structure of the body considered as dead, it is anatomy, from the Greek word meaning to dissect or cut to pieces. The science of the soul is psychology, the Greek for a treatise on the soul. The science of things beyond the visible and sensible physical world, that is, which does not fall under the senses, was called by Aristotle metaphysics, meaning beyond the physical, while the study of natural phenomena, wherein the substances do not change their internal structure, is physics or natural philosophy, but where the materials of sensible sub-

stances or bodies change it is the domain of chemistry. A knowledge of the movements of the heavenly bodies is astronomy, while the study of the supreme principles of being in general is ontology.

A dazzling light was formerly thrown on these sciences by the great scholastic writers, and when treating of man, they united all in a harmonious whole. But the religious revolution of the sixteenth century came to break the golden thread of human knowledge, and the learned works of the great minds of antiquity were left on the shelf covered with the dust of centuries.

Descartes endeavored to bring order out of the chaos into which the natural sciences of his day had fallen. But in place of investigating the writers of the ages which had elapsed before his time, he began to elaborate the supreme principles on which all sciences must rest, from his own mind, in place of drawing them from the limpid sources of the scholastics, who united in their writings the investigations of nearly seventy generations. He considered man not as one being, one whole compound, but as being composed of two, body and soul, especially soul alone. From that time the science of man was separated from physiology, from zoology, and from the other sciences. Not knowing how soul and body could be united, he treats them separately, as he would of England and Japan. His disciples imagined such nonsensical theories as that God established at the beginning a harmony between soul and body, so that the body moved itself, but the movements were carried on by him in the soul and in the body, so that they agreed like two clocks, which keep perfect time together. This is the theory of Leibnitz. Melbrauch, on the contrary, supposed that as the body acted and was acted on by exterior things, God took occasion of these to produce corresponding sensations and perceptions in the soul. Another system consists in this, that the soul acts in the body and the body on the soul, although soul and body are independent still. But although this is not as bad as the two former theories, still it is wrong, for it makes the union between soul and body only an accidental union, whereas the body and soul in man are not to be considered as two separate substances, but as *one*. By their union they form one person, one individual being, man. The body united to the soul forms the living organism. The soul assumes the material body, gives it life and movement, makes it one being with itself, and live its own life. The soul dwells in each and every part of the

body, and it is whole and complete in each and every part. In a word, the soul is the *substantial form of the body.* This we will explain in the following pages. The soul and body must be studied together as forming one individual.

The physiologists and teachers of medicine study only the body and leave out the soul. Therefore they incline to say that all vital actions in man come only from the forces of nature, from capularity, endosmose and exosmose, affinity, heat, chemical action, electricity, magnetism, etc. Numerous other systems have arisen in our day. According to them breathing is a kind of combustion ; the circulation of the blood takes place according to mechanics and the laws of hydrostatics ; generation is only a breaking off of parts, to form new individuals ; the stomach is a chemical furnace ; the lungs are a pair of bellows ; the brain a voltaic pile or an electric battery, and the nerves a system of telegraphic wires. Thus, the tendency of modern science is to deny the soul, and to say that life is only the result of physical forces, and the mind but a higher result of sensation. On the one hand, Descartes taught that man was but a pure spirit, while on the other hand, going to the opposite extreme, Condillac, Lamarck, Darwin, Hixly, Tyndall and Haekel teach that man is only the highest result of physical forces, produced by evolution from the animal. To rescue science from the awful pitfalls into which it has fallen, we must consider man as composed of body and soul, not separate, but united in the most intimate union and forming, both together, one nature, one person, one single individual. To do that we must fall back on the wonderful teachings of the Scholastics, especially of Thomas of Aquinas, whose theories modern science has confirmed in a remarkable manner.

Force in matter appears as the attraction of molecules or atoms, and comes from a principle called the form, which we will explain farther on. In the plant the form is of a higher nature than the mineral form, for the bony principle of the plant contains all the perfections of the mineral kingdom. In the animal the form contains the perfections of the mineral and vegetable forms below it, but in a still higher degree, besides being the principle of animal life. But these forms of vital principles, of plants and animals, cannot exist outside the organisms, for the organism being destroyed, the vegetable and animal forms or souls perish. Now the human soul is the form of the human organism, or body, or man. It contains virtually, that is, in a higher

degree, the forms of the minerals, of the vegetables, of the animals and of the angels, that is, the mind and free will. But as the vegetable and the animal dies, so man's body dies. But the mind, that is, the reasonable part of man, cannot die. It is immortal. It can exist separated from the body. In life, in its action, it is independent of the body. In the angel we have a form entirely separated from matter, while, when we rise to God, there we find the Supreme and eternal Form, the Form of forms, the Force of the universe, the supreme and principal Life, the Mover of all things.

The soul, then, being united with the body, forms one person, one nature in man. From that union arises one living being, one animated body, an organism which is neither soul nor body, but the product of the union of both. Life is common to both, for the soul raises the body up to its own life and gives to the body its life and makes it a living being. The result of this union is the living organism, man's body. But the soul is spiritual and the body is material. Nothing can be so different as the spiritual and the material. The spiritual cannot act on the material. Yet how are the soul and body united? That question has troubled many a sage and philosopher. Some suppose the difficulty never can be solved. St. Augustine says it is above the human mind to understand. "The way," he says, "in which spirits unite with bodies and become animals is exceedingly wonderful, nor can it be understood by man." In his letter to the unbeliever Volusian, he says that the union of God and man in Christ is easier to understand than the union of soul and body in man. "As the Word of God uniting with a soul having a body, took at the same time that soul and that body. One of them takes place daily in the generation of man, the other took place only once to redeem men. But the union of two spiritual things is easier to believe than the union of a spiritual with a corporal thing. For if the mind is not deceived in the understanding of itself, it sees well that it is spiritual and much more, the Word of God is spiritual. Now is it not easier to believe in the Word of God with the soul than in the union of the soul with the body? But we feel this in ourselves and faith tells us to believe this in Christ. But if both of these unions were proposed to us, which would we sooner believe? Why should we not confess that it is easier to believe in the union of two spiritual things, than in the union of the spiritual with the corporal?" Thus we see

that the piercing mind of the great Bishop of Hippo saw that it was easier to understand the union of the Son of God with man in the Incarnation, than the union of soul and body in man. The Divinity of Christ is the foundation of the Christian religion. For Christ united to the soul, that is the mental Word of God, the Son ; a spirit united to the soul of man a spirit. That union took place in the mind of the man Christ, as the mind is the highest faculty of man. That human soul of Christ had from its creation a body united to it, the body of Christ born of Mary. It is therefore easier to understand the Incarnation of Christ than the union of soul and body in Man. One is used to explain the other in the Athanasian creed : "As the reasonable soul and the flesh makes one man, thus God and man makes one Christ." The difficulty of explaining the union of our soul with our body is without doubt the greatest man ever undertook to solve, yet if the reader will be patient and read carefully, we will solve it. The solution is found in the writings of the great Scholastics. It can be summed up in one sentence: *The soul is the substantial form of the body.*

Such are the questions we propose to solve in a satisfactory way and no one can go far from the principles we will lay down and be correct, for they are the sum and substance of all human knowledge. For as man is a little world, in treating of him, we will treat of every science, of every branch of human learning.

Besides, we will show that the discoveries of modern science, in place of being opposed to religion, on the contrary, we find that they confirm the chief points of religion and prove revelation. Each secret nature gives up to man renders homage to God. Each science, when developed to it fullest result, throws a new light on the doctrines of the Church. Thus science and religion are like two sisters of the same father, and they should live together in peace and harmony in the human mind. The science of man, or as it is called, anthropology, should be studied in all its completeness. Then medicine, physiology, anatomy, zoology, chemistry, physics, in a word, all the sciences which have lately made such rapid progress, will find a brighter halo around their fair brows, they will all unite in the study of man, the completion of creation.

To do this we must go to the bottom facts. We must penetrate the effects and see their causes ; we must not be biassed or prejudiced against either religion or against science,

but filled with a love of truth. We will examine each range of creature, see what place it occupies in the plan of creation, and graft it on the science of anthropology, the cyclopedia of human knowledge. To do that we must consider man as composed of body, which grows, has sensation, and of a soul which thinks. We have then before us man, a compendium of all creation, and in him we can study the universe. But as the universe is made according to the plan in the mind of God, thus we will take each perfection in creatures, trace it up through the different orders of creatures, till we find it eternal in God. Thus we will show God in creatures and from the creature we will soar to the contemplation of the great Creator of all things.

Therefore, reader, know thyself. The knowledge of man is infinitely above the knowledge of any other creature. King of the universe, he is the plan of the universe, the last and most wonderful being created, uniting within himself the material and the spiritual: he is endowed with the perfections of all. Seeming, to our way of thinking, to have exhausted his own omnipotence in creating such a wonderful creature as man, God seems to have rested, as though satisfied with his handiwork. As Chrysostom says: "Man was made the last, because as when a king enters his royal city, they first build him a palace and decorate the city for his coming, thus, this world for countless ages was prepared for man's coming, and when he came he found all prepared for him beforehand." Then in the fulness of time he came, standing on the horizon, between the visible and the invisible, between the material and the immaterial, himself a little world. His feet upon the earth, his head erect toward heaven in body and soul, partaking of the material and of the spiritual, existing like the minerals, living like the plants, moving himself like the animals, reasoning like the angels, in him all find their types, and like a mirror he reflects the rays of the Infinite God. His body is mortal and dies like the plant and animal, but his mind lives eternally with God. Therefore, know, O man, thy dignity. Study thyself. After God, the greatest study of man is man.

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The Mineral Kingdom.

CHAPTER I.

The Origin of the World.

Man is composed of body and soul. His body is made and formed of the materials of the mineral kingdom. If we allow the body to dissolve into its ultimate particles, we find it composed of water, lime, phosphates, iron, sulphur, nitrogen, oxygen, hydrogen, etc. To understand man, then, in all his completeness, we must treat of the nature of minerals, their origin and their qualities. The mineral kingdom is composed of beings without life. This great branch of beings, the mineral kingdom, is the foundation of the earthly living beings. The living organisms rest on and live on the earth. We find in man the chief qualities of the minerals. Like the minerals, has shape, size, color, movement, etc. By universal attraction man is related to, acts on, and is acted only by the most remote planets and suns which circle round the heavenly spaces. By the waves of light which beat on his shore of vision, he sees and studies the twinkling stars as well as the beauties of the surrounding world.

But what was the origin of the mineral kingdom? Where did it come from? There are two opinions. St. Thomas, with many of the Scholastic writers, thinks that the world could theoretically have existed from eternity, although they practically agree with Christians and hold that revelation teaches that it was created at the beginning of time and not in eternity. Theoretically speaking, the world might therefore have always been in eternity with God, but created by him, for it could not have created itself before it

existed, as then it would have acted before it existed, which is impossible. Those who favor the theory of eternal creation say that God always could have created matter. For that it would only be necessary to admit that God was the cause, and matter the effect. God could have created all crude matter, in an instant, and from nothing, for he is all-powerful and almighty, and could have done so in eternity as well as later. But before the creation of matter, then, there was only eternity, and not time, because time is the measure of the duration and changes of matter, and it is computed by the movements of material things, especially of the planets.

Those who deny the possibility of the eternal duration of matter, say that as the world is an effect, of which God is the cause, there must have been a time when the cause, that is, God, existed alone before the effect was, that is, before the world was produced. That time was eternity. As the world was created entirely from nothing, before its creation there was nothing but God. Again, we cannot think of the production of a thing which had no beginning. We can conceive the duration of an eternal being, who had no beginning, that is God, but not of a created being which had no beginning of creation, or matter, which is a creature. Supposing that matter was from eternity, then we would have one infinite greater than another infinite. For we would have infinite time, infinite day, infinite duration, and the movements of the stars would also be infinite, and time would have no beginning or no end. In that case, each day and year and revolution of the heavenly bodies would add another period of time to the infinite duration of the universe, which is impossible, because absurd, because the infinite is that which cannot be increased, and anything greater than the infinite cannot be conceived. Again, there would be a series of movements of the stars, measuring time without a beginning, which we cannot conceive as possible.

We have given the chief theoretical reasons for and against the belief in the eternity of matter. It is a purely abstract question and any one is free to admit it as long as he believes that God created the world. A person who says the world created itself, or that it was not created, talks very foolishly. But numerous scientific writers claim that matter is from eternity and they make a great noise against the Church for condemning their teaching, when the Church only defined that from the beginning of time and from nothing, God, to show his perfection and for his own glory,

freely created the world from nothing, and not from himself. Then the world is separate and distinct from God and not an emanation of his own substance, which is the gross error of pantheism. This the Vatican Council distinctly declares. All other questions are free, and the Church is anxious that true science would make greater and greater progress, for science proves the truth of the chief doctrines of the Church, and is not opposed to religion.

Leaving aside the exact time of creation, let us see the various theories or hypotheses of modern writers relating to the way matter was created. A theory or hypothesis is a way of explaining a thing which we do not understand. The most popular scientific theory of the creation is that God made the world, at least that part composing the solar system, in a state of gas, extending far beyond the limits of the planet farthest from the sun. La Place, a celebrated astronomer, is the author of this theory. This vast globe of gas is supposed to have been without form. This certainly agrees in a remarkable way with the Bible account of creation, which says that, "the earth was void and empty, and darkness was upon the face of the deep," because no sun or stars had yet been brought into being to light up this vast formless globe of gas. Now, according to the scientific ideas, by an impulsion given it by some other force, this whole mighty globe of thinnest gas began to move from west to east, while the Bible says that "the spirit of God moved over the waters," that is, gave it movement, for no mineral substance or gas can move itself. For we know that matter must be moved by something else. Then we read that God said, "Be light made, and light was made." At this time, evidently, the fixed stars and nebulæ were made, and their rays penetrated and lighted up the vast mass of the newly created world. When, or how many ages ago this took place, man will probably never know, but every discovery tends to show that it was in the most remote past, and no person of any learning now believes that the world was created in six days of twenty-four hours each, but that the six days of creation mean six vast periods of time, and that day in the Bible signifies the same as our word epoch.

This supposed vast globe of matter, guided, like all matter, by the laws of universal attraction, began to condense and settle towards the centre. As God gave it the movement mentioned in the Bible, the more it condensed, the more rapidly it revolved, or the faster it whirled on its axis. That is a law of mechanics. Tie a piece of lead to a string,

swing it around and let the string coil around your finger, and the shorter the string the quicker it will whirl. Following this law of matter, the inner parts of the great globe are supposed to have begun to turn faster than the outer portions, and they threw off great whirling rings. The only example we know of now remaining of this are the rings of Saturn. These whirling rings, around the great revolving central mass of matter, broke into pieces by attraction, came together by gravitation and formed the planets of the solar system. All the planets still revolve from west to east, showing the remains of this fiery globe. Some of the planets, obeying the same law, after they had condensed into globes also throw off portions of their matter, which in turn formed the satellites or moons of the planets. In that way our satellite, the moon, was once a part of the earth.

It is a law of nature that when matter condenses it evolves heat. Then this rolling ball of matter condensing evolved heat and the more it condensed the hotter it became. It condensed more in the centre than on the outside. The central mass formed the sun, which is a ball of gases in a state of heat between twelve and fifteen millions of degrees Fahrenheit. The outside of the earth and planets long ago cooled, while in the interior are still found the remains of that heat. The moon, being a small planet, long ago cooled and it is recognized by astronomers to-day as a dead, lifeless planet, yet showing on its surface the remains of former volcanic heat and activity. The larger planets would cool slower. Hence Jupiter, Saturn, and Neptune are partly solid, partly fluid, as they have not yet entirely cooled. The interior of the earth is very probably in a melted state, and its interior heat often shows itself in volcanic activity, earth-quakes, hot springs and by the heat of deep mines.

Now, regarding the eternity of creation, we would remark that the internal heat of the earth and of the sun and planets and fixed stars contradict this theory. For eternity is a long time. In fact, if I write 9, and add to it the figure 0, as close as the letters on this page, till they go around the earth, till they are so numerous that they cover the entire surface of this globe and call each figure a century, I will not have measured the length of eternity. Now if the world was made from eternity, the last degree of heat in the earth, suns, and fixed stars would have disappeared ages ago. Then the existence of light and heat in the universe shows that the world was created in time and that matter is not eternal. Yet we know not how many ages ago creation took place. For the

Bible says, "In the beginning God created heaven and earth." And St. John in the Gospel says, "In the beginning was the Word," that is, the Son of God. In these cases the word "beginning" is used once to signify the origin of the world, in the other to mean eternity, during which the Word of God, who is the Son, was in the mind of the Father. But in the ancient languages in which the Bible was written, that word we translate by "beginning" means about the same as our word principle. The Bible, then, being a book of faith, and not of science and of dates, throws no light on the time or manner of creation; it only states the fact.

The Bible speaks of "dividing the waters that were under the firmament from those that were above the firmament." Evidently in our nebular theory the waters here spoken of in the inspired book were the gases composing this great twirling globe and this division of water was the throwing off of the great rings which formed the earth and the planets. The movement of the great mass was very slow at first, and became more rapid as it condensed towards the centre. During this work countless ages went by. Therefore, the outer planets, which were thrown off when it moved slower, make their revolutions around the sun in longer periods than the earth and the planets nearest the sun. Thus Nepture or Uranus, the farthest planet yet discovered, travels around the sun once in nearly 165 years; Jupiter in nearly 12 years; Saturn in 29 years; Mars, the planet which most resembles the earth, in 2 years, while the interior planets circulate faster around the sun. The sun is a vast globe of fire 853,000 miles in diameter and revolves on its own axis in about 25½ days. The vast mass of the sun, by its attraction, keeps the planets in space. That attraction draws them to him. But when you tie anything to a string and whirl it around, the faster it turns, the more it will tend to fly away. But the string holds it. The string here represents the attraction of the sun and the article tied to it one of the planets. This force is called centripetal force. The rapid revolutions of the planets tend to make them fly away into space. This is called centrifugal force. The nearer the bodies are to each other, the stronger they attract each other. But in the case of the sun and planets, God placed them at such a distance from the sun, that one force exactly balances the other, and thus they stay ever revolving around the suns or the moon, and satellites around their primaries. To place them at the right distance and to give them the right movement and correct rapidity,

so that they would neither fall into the sun, nor fly away into space, for that it was necessary, at their creation, to weigh every part and particle in the sun and in each planet. This could only be done by the Supreme Being. Nor can we say that it happened by chance or accident, which might perhaps have taken place once in a thousand million times, with one planet. But in this way, and according to this law, all the planets are sustained. This is the rule among the fixed stars, the double and triple stars and with all the mighty suns which twinkle in countless millions in the heavens, for all are related and are ruled by the universal laws of gravitation and by these two simple laws they equally balance each other and circle around each other forever.

None of the planets revolve around the sun in exact circles, but in ellipses, that is, in oval paths. This was probably caused by the sudden breaking away of the rings, which formed the planets, when they were thrown off from the great central gaseous revolving mass. Besides, they do not turn on their axis in the same plane as they do around the sun. This was also produced probably by the same cause.

This supposed scientific and mechanical theory of the origin of the world appears to be confirmed by the numerous nebulæ or cloud-like spots in the sky, situated at almost immeasurable distances away from us in the depths of space. They are supposed to be worlds now forming, gradually condensing, and as time goes on forming new worlds. The spectroscope says that many of them are composed of gases. Besides, if you arrange oil or any other substance in water, or other fluid, with which it will not mix, when both are exactly of the same specific gravity or weight, and then whirl the oil more and more rapidly, it will give off rings, which will break up into new globes or spheres revolving around like the planets. The earth and planets are not entirely round, but they bulge out at their equators, as they would do if they turned under the force of gravity alone, when in a fluid or molten state and then cooled in that way. Thus the earth's diameter at the poles is about 26 miles less than at the equator.

God leaves nature to its own laws. He presides over these laws, he laid them down in founding nature. His nature is simple, and creatures, but in a feeble way, represent his nature. Nothing could be simpler than this theory, regarding the formation of the world. Then we see only three direct acts of the Creator : creation from nothing, the move-

ment of matter, and the time and place where each heavenly body was to be broken off in the shape of a ring. The light and heat, therefore, of the sun is the result and the remains of this condensation of the great originally created central globe. The planets, as the earth, moon and the smaller ones, have cooled, the larger ones are still hot, while the sun preserves the larger part of the energy. It is still cooling and in that way the sun supplies the surrounding worlds with light and heat. Helmholtz intimates that the heat of such a great condensing gaseous globe would be sufficient to supply the light and heat of the sun for from 20 to 30 millions of years. Tyndall supposes that the energy of the sun is continually kept up by meteorites and other bodies falling into it. Other scientists think that chemical action alone supplies the heat of the sun. But the writer rather thinks it is the remains of the energy produced by the great globe of gas condensing as given above.

Tyndall shows that heat is a mode of motion. All physical motion on this earth comes from heat. Thus the water rises from the ocean by heat, condenses, falls, runs in streams and turns our wheels of industry. The coal that burns in our engines and draws our cars, runs our machinery and even moves every muscle of the animal and human kingdom, all comes from the energy of the sunlight, stored up ages ago in the seams of coal or in the vegetable and animal foods eaten by man and animal. Thus the mineral kingdom, the stars and planets and suns, in fact, the whole universe, is like a vast clock running down, exhausting all its forces according to the laws given it by the Creator. As at each tick of clock or watch only give out a little of the power given the whole machinery by the one who wound it up, thus each movement of any creature but expends a little of the energy given to creatures by the Creator. Therefore, all movement comes from God, from him, the primeval Mover of all things. Movement, then, like substance, cannot be destroyed by man, but only changed, because it came from the changeless God. A being is anything which can exist or be in any way. Therefore, the idea of a being is more extensive than that of a creature, for countless numbers of beings which could exist never did or will exist ; for these reasons their types are in the Eternal Mind, in the Son, but they were not created. They are simply possible, while those which exist are actual ; that is, by an act of God they were brought from pure possibility in his mind into actual existence and that by his creative

power. They are therefore real creatures, while the others, or the uncreated possibilities, are beings of pure reason. Thus, man in his own mind plans many things which he does not carry out, and they have no real existence outside of his mind. In this the human mind resembles the mind of God, for it brings forth ideal images of merely possible things. These ideas remain in the mind and they do not pass without or separate from the mind. But in God the idea is the Son, who like the idea of the human mind, being one with the mind, he is one with God. Therefore, the Father and Son, in heaven, is One God.

Beings again are necessary and contingent. A necessary being is one which cannot nor never could cease to exist. It exists by itself and by itself alone, that is God. But contingent beings are those which could never have existed and still involve no contradiction. All creatures are contingent beings, because we can suppose them not to have been created and their idea of never having existed involves no contradiction. From this we conclude that the world had a beginning. Because the self-existing being must be changeless, while all nature is changing and all change supposes a beginning and an end of change, or a beginning and an end of itself. Besides nothing can exist unless it has somewhere the type or plan according to which it was created. That could not have been in itself before it was, but in another being, God, who made it according to his Image, his Divine Son.

It is repulsive to us to apply the strict idea of infinity to creatures, for that alone belongs to God, who is the only Infinite, for the infinite is that which has no bounds of time, space, power, etc., and greater than anything which can exist. But if the world was from eternity, and will last forever, then it is infinite in duration. But God is also infinite in duration, and we would have two infinites, God and the world, and these two added together would be greater than either, which is absurd, because the infinite is something greater than anything or all things together which we can conceive. Unless we fall into this absurdity, we must conclude that this supposed infinite world is the changeless infinite God, which cannot be true, because the world is in ceaseless change, as daily experience shows.

These are only a few of the arguments which Christian philosophers give against the scientific infidels of our times. We will not stop to give any more, hoping these few remarks will show how any infidel arguments against the Christian idea of God and of creation only fall into the

ridiculous and the absurd, when carried out to their legitimate conclusions.

The nebular theory of creation given in this chapter appears to find its proof in a thousand phenomena of nature. Some of the heavenly bodies, like the moon, are dead, without evidences of internal heat, life, or the sign of a living thing. Their surfaces are covered with the remains of former volcanic action, which ceased long ago because their internal fires have cooled. Other planets, like Jupiter, Saturn, etc., still seem to be subject to continual activity, and their density is a little more than water, for they are in a partly melted and half gaseous state. The lowest rocks of which the crust of the earth is made, show the action of intense fire. Everywhere we find the marks of great heat, expended during the vast ages while our globe was cooling. The footprints of gigantic animals, birds, and reptiles, the bones and shells of species of beasts long ago extinct, tell us of various forms of living beings which appeared on the earth soon after the vast waters condensed and baptized the earth with mighty floods and glaciers to grind the rocks and form the soil for the growth of the vegetable kingdom. In studying all these recent discoveries of science, we are irresistibly led to believe that a guiding hand presided over all. Geology shows us on every side that the history of the earth is written in eternal rocks, and on the gigantic mountains and plains. All tell of mighty forces, which once sported on the surface of our planet long before, but preparing for, the coming of plant, animal, or man. It is evident that the climate was not the same as to-day. All parts of the earth's surface show the action of fire, then come vast periods of heat and cold, when mighty glaciers covered the hills and filled the valleys of the northern and southern hemispheres. Another epoch came then, of balmy air, of perpetual spring smiling on the land, and still again, changes to cold came, of frigid cold and warm, balmy summers. Many theories try to give the cause of all these changes, but no satisfactory solution has yet been broached. We must wait till science, which is still only in its infancy, is more developed.

No branch of the natural sciences show us the wonders of God more than astronomy. For that reason we never find great astronomers becoming infidels. The great Sir Isaac Newton always took off his hat at the name of God. What wonders the telescope, the microscope, and the spectroscope reveal of the powers of God in the heavens and on

earth ! He is seen, there, as the most wonderful Mathematician and Scientist, and the discoveries of this science are developed the more they show forth his power and omnipotence.

In the foregoing we have followed the theory of modern astronomy first broached by Father Cupernicus, a canon of the Cathedral Frauenburg. He taught that the sun is the centre of the solar system, and that all the planets, with their moons, circle around the sun. The other system in vogue, before his time, called from its originator, Ptolemy's system, considered the earth as a flat surface, bounded on every side by the sea, with the sky as a vast dome on every side rising out of it. They supposed the sky to be made of many transparent spheres, along which the sun, with the planets, circled and shed their light. This theory is entirely abandoned in our time by all learned men.

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CHAPTER II.

Of what are Minerals Composed? or, The Constitution of Matter.

The intimate constitution of matter has occupied the attention of the brightest minds, since the dawn of Grecian civilization. What is matter? of what is it made? has always been an interesting question with philosophers in every age. Three theories have been given—the dynamic, the atomic, and that of matter and form. Pythagoras, a Greek philosopher, first taught the dynamic system, and it was revived in modern times by Leibnitz, Boscovich, and their disciples. This theory supposes that matter is made up of monads, that is, of simple active substances without extension. They are forces existing alone. They may be compared to mathematical points, without length, breadth, or extension. A great many of these together make all substances, according to the nature of the monads. Leibnitz supposed that each monad had intelligence and free-will like a spirit, but before his death he retracted this idea. Boscovich rejected this intelligence and free-will and claimed that a very great but still finite number of these is in each particle of matter. They are endowed with a mutual attraction and repulsion. According as they are grouped together in different ways and proportions, they make the various metals, gases, and fluids of the mineral world, in about the same way that numerous black points, united in certain ways, would make the letters of the alphabet, and the latter all the books in the world.

Following this system, matter cannot be divided to infinity. But the latter is true, or mathematics, which tells us that matter can be thus divided, is false. This system we cannot admit, for mathematics forms the purest and most convincing series of reasonings we have. If matter cannot be really divided to infinity, that is because we have not instruments fine enough. Therefore, theoretically, we can, but practically we cannot, divide matter to infinity. Besides, according to this system, simple points without extension would, by combining, make extension;

that is, they would give a real extension or length with thickness, which they have not got, which is absurd. In this system one part of matter would penetrate another, and both be in the same place at the same time, which in material things cannot take place. Bodies, then, would act at a distance without an acting force, which is impossible. But as this system never spread much in this country, we will pass it by as not worthy of much consideration, for it gives matter the qualities of a spirit, which we will see farther on is entirely above all the material power of matter, for a being can never rise above its nature.

The second system considers all bodies as composed of atoms and molecules. This was invented by Epicurus, of ancient Greece. Soon after it was abandoned by Plato and Aristotle, and the system of matter and form took its place. At the religious revolution of the sixteenth century, it was revived by Descartes and spread everywhere by the commanding influence of Sir Isaac Newton and his disciples. The atomic system is taught to-day in nearly every text-book of chemistry, physics, and in all the natural sciences. It has spread into every school of modern science. No one appears to question the truth of the theory. The writer for many years supposed that it was the only way bodies could be made, exist and exert their forces, and for a long time he held fast to this hypothesis. But deeper thought and longer studies show that the system of atoms and molecules is entirely at fault and that it is false from the foundation.

According to the atomic theory every body is composed of atoms and molecules. They are so small that if a drop of water were to be magnified to the size of the earth, the atoms of water in the drop would appear about as large as oranges. These atoms are round. They have extension and indestructibility. They attract and repel other atoms of the same or of different materials. When they repel each other a large number of them form a gas; when the attraction and repulsion are equal or balance it is a fluid; when the attraction for each other is greatest, it is a solid; they often attract in certain directions and give rise to crystals. A number of atoms form a molecule. The atoms do not touch each other, but a space always exists between them. They are supposed to approach when the body is cold and to separate with heat. That explains the contraction of cold and the expansion of hot bodies. These atoms are never at rest, but are ever trembling with motion; that is heat. The

more they tremble the hotter is the body. In the gases they shoot out in every direction and strike against the vessel which contains the gas, when it is compressed, heated, or confined. That explains the compressibility and elasticity of gases. As the senses only see the accidents, forms, modes, and appearances of bodies, while the mind alone can penetrate within to the real substance and essence of bodies, it is no wonder that such a theory has spread in modern times, especially when propagated by such men as Newton, Faraday, Helmholtz, Tyndall, and their disciples.

Scientific men, being engaged so much in sensible phenomena, do not always stop to think that no one ever saw or ever will see an atom or a molecule, for they do not exist except in the imagination of men; because it is an easy way of explaining things, this theory has spread everywhere. If the atoms do not touch, how can we account for the hardness of the diamond, which is pure crystallized carbon or coal, a soft substance ? How can we believe that heat is a trembling of atoms, and that the hotter the body is the more the atoms tremble and separate, when we know that some bodies contract by heat and expand by cold, as india-rubber, &c. ? In fact, water, iron and some other materials suddenly expand with great force, when passing from the liquid to the solid form. Nothing can resist the expansive power of water when freezing. Whence comes this power, so suddenly and mysteriously developed ?

This is one of the wonders of God in nature, and it was laid down by his overshadowing Providence. For, if water would continue to contract by cold, as it does to the moment of freezing, it would become heavier and sink to the bottom, a solid mass of ice. The other water above it would also sink upon it, and soon all the water upon the globe would become solid ice, because the upper layers of ice would prevent the lower ones from ever melting. In this way the earth could not be inhabited, for all would soon be covered with more than arctic cold and frost, and everlasting winter would bind in wintry bonds the surface of the earth. Soon all life would be destroyed. But by this simple law the ice floats on the surface of the water, and prevents the water below from freezing. Here, as everywhere in nature, we see the design of an All-wise Mind, laying down and sustaining his laws for the good of his creatures.

If electricity be "a jar of atoms," as Edison so well put it one night to the writer, as we sat in his laboratory, soon

after he invented his incandescent lamp, how can this "jar" account for induction, attraction, magnetism, and a thousand other phenomena of electricity. This atomic system has not all the faults of the former theory of simple monads, for it supposes the atoms and molecules to be extended, and extension is the foundation of all the other qualities of bodies. But in this theory all bodies are not really *one*, but every mineral is formed of numerous other little bodies, like a lot of fine shot, sand, or ashes united together in a pile. But we know that each body is *one*, not composed of parts, and we call the body *it*, not *they*, as we would if we believed all bodies were made of atoms. This false system of atoms and molecules destroys in each creature its resemblance to God the Creator, who made each creature to resemble himself. For each creature is endowed with single being, and in that it resembles the one Supreme Being. Each creature has activity, and in that it tells us of the ever-active God, who is the infinite Act. Besides light, which penetrates everything, and besides the spectroscope magnifies the smallest ray to a length of hundreds of feet, and when this little ray is projected on a long wall, after passing through glass, it does not show the slightest trace of molecule or atom. How can a body act at a distance? Yet this is just what the atoms and molecules are supposed to do. As they do not touch, how do they produce the phenomena of magnetism and electricity, or how do they keep together and form bodies? A thousand objections could be made against the atomic system of the constitution and composition of matter.

The atomic system of the nature and of the ultimate composition of bodies is evidently false. This is the conclusion of all learned and scientific men, who think deeply and meditate profoundly. It is the teaching of all profound scholars. Although this system is much more reasonable than that of the simple bodies of Leibnitz, given above, still it is very unsatisfactory to the human mind. It has become popular, because it is easy to understand and it appeals to the senses and to the imagination. Nevertheless, the whole system of atoms and molecules is false, deceptive, destructive of the unity of each individual thing and leads directly to materialism and to the denial of God and the harmony of nature. Then is it no wonder that scientific men often become infidels, when the very atomic system is false on which they base their principles, and from which they draw their conclusions. The facts and the phenomena of science which fall under the observation of the five senses are true

as the senses do not deceive, but the reasonings, the conclusions are often false, because the atomic system, the foundation of modern science, is false.

Plato and Aristotle saw this plainly 400 years before Christ. They soon abandoned it for the system of matter and forms. Leibnitz, in his New System of Nature, says: "At the beginning, when I freed myself from the yoke of Aristotle, I delivered myself up to empty spaces and to atoms, for these satisfy better the imagination. But having come back, after much meditation, I saw that it was impossible to find the principles of a true unity in matter alone, or in that which is only passive, because all is but a collection or a mass of particles to infinity. But a multitude can have its reality only in true union, which comes from elsewhere and in other things than points, of which it is certain extension cannot be composed. Then, in order to find the real union, I was obliged to return to a formal atom, because a material being could not be at the same time material and perfectly indivisible or endowed with a true unity. It is, then, necessary to recall and as it were re-establish the substantial forms so cried down today." Here this great philosopher throws overboard the two systems given above, and rejects completely the atomic theory. What he means by the substantial forms we will see presently.

We come, then, to the theory of matter and form. According to this theory all bodies are made of primeval matter and substantial form. That is, all material things, all materials of the mineral kingdom, are made of matter, which cannot exist alone without its form. Matter is the principle of extension alone. Primeval matter is the same in all material things. Without the form, matter is next to nothing. It cannot exist. The form here spoken of does not mean the outline or the shape, but one of its principles of existence and the source of all activity in minerals. The forms of things differ one from another, but the primeval matter is the same in all material things. There is, then, in the universe but one primeval matter for all material things, but each visible body or mineral has a distinct and separate form. The form, then, specifies the thing. The form cannot exist alone without the matter. All attraction, repulsion, color, in fact, all acts come from the form. Take primeval matter, which gives only extension to bodies, and add to it the form of gold, and you have gold, the form of iron, and you have iron, and so of all other substances. This form, then, the source of all action in bodies, has very imperfectly the nature,

the activity, and the figure of a spirit. It is ever active. It attracts and repels material substances and makes each body what it is. In the primary elements of matter, called the primary minerals or metals, that is, primary elements, which cannot be divided or dissolved into others, as gold, silver, copper, carbon, hydrogen, &c., we find the simplest forms. There are nearly seventy simple elements discovered up to the present date. When two or more simple elements unite, the forms unite to make a new and higher kind of form, partly having the activities and qualities of the other two. Then the new compound substance will be endowed with perfections not found in the elementary forms of which the substance was composed. Thus hydrogen and oxygen have each the same primeval matters, but each has a different form, one that of hydrogen, the other of oxygen. Uniting they keep the same primeval matter, but their forms unite to make a new form, that of water. The same may be said of all chemical combinations. When water is dissolved into oxygen and hydrogen, its elements, its form of water dissolves into the forms of hydrogen and of oxygen. When three substances unite together to form a fourth, as $C_4 H_6 O_2$ in proportion to the parts given and under the regular laws of chemistry, they form alcohol. They unite and loose themselves in creating a fourth form of matter, that of alcohol. Then the primeval matter will be the same and will not change, but will remain in the new substance formed from the chemical combination of the other three. The form then changes when there is a change in the substance. That is the domains of the science of chemistry, which treats of the changes of substances. Where the substances do not change in their nature, but in their modifications or modes of action, phenomena of that kind belongs to physics.

Therefore the reader will take notice that when the substance changes it belongs to the science of chemistry to study the nature and laws of this change. But when not the substance, but the accidents or modes of bodies change, while the substance remains the same, it belongs to physic or natural philosophy. The accidents or modes, or appearances of bodies, acts on the five senses, while the mind penetrates beyond, and sees the substance under the accidents.

The reader will before this understand that by form, here, we do not mean the shape of a body, as that is a mode or accident, for a body can take on many different shapes, as wax can be molded into many shapes, and still remain wax.

But we speak here of a something which belongs to the very essence and to the nature of bodies, without which they could not exist, which makes them what they are, and not something else. We never see primeval matter and substantial forms separated, for neither could exist separated from the other. But they could by a direct act of God. The form, then, is the root and source of all activity in bodies. Thus, color, weight, appearances, softness or hardness, heat and cold, in fact, all activity in minerals come from the form, and extension from the primeval matter.

The reader, I hope, by this time has got this theory in his head. It is new in our age, but it is quite old among learned men, and it better accounts for the mysteries of nature than the theory of atoms and molecules. Thus a stone has one form, which makes it a stone. If it had the form of gold, it would be gold; that one form is complete, for each single thing, that makes it one. Simple people appear to know and follow this theory, by a kind of natural instinct or logic, for they say "it" and "one" to each thing, whereas, in the atomic theory, each thing is not one, but composed of numerous atoms, which are many, and each thing is plural, not single, as the simple people say.

We cannot change one form into another; thus, we cannot change the form of iron into a golden form, for that would change iron into gold, the dream of the alchemists of old. It is in chemistry that we see forms change. This to-day is supposed to take place by atoms and molecules dissolving and uniting again in new combinations, so as to form new substances. But really it is the forms of the substances uniting to make a new form, as in synthesis, where many substances unite to compose a new one, or analysis, where a compound substance dissolves to form two or more simpler substances.

When two or more substances united chemically to make by their union a new and more complex substance, as hydrogen and oxygen uniting to make water, the forms of those two gases unite and by their union they make the substance or fluid water. Then water is distinct in its action from both the gases oxygen and hydrogen, composing it. Thus it is with all substances. As a compound, arising from the union of two or more simple substances, has the forms of these substances in itself, so we see that substances unite in a regular and unchanging manner. Thus one volume of oxygen always unites with two volumes of hydrogen and forms water, while air is composed of four parts of nitrogen

and one part of oxygen in volume. Thus all materials unite according to the strictest laws. That is represented in chemistry by figures meaning and representing the quantities of the primary elements contained in each compound substance. All this shows us the Mathematician of nature, God, who, at creation, gave each substance its laws. These combinations cannot be changed by all the power of man. They show God, for crude matter could not lay down any law for itself before it was created, nor would it follow any rule or law if God did not ordain and oblige it. Thus chemistry shows us that God, by his mighty power, and by his all-reaching hand, has weighed and measured each particle of matter, laid down its laws, its density, weight, and measure, its attractive force and its affinity for other materials and elements. Every part of the mineral world shows the wisdom and the power of God ; all show him as a Mathematician wise and learned, inconceivably beyond the most learned of men or scientists. It is only in modern times that this science has progressed, especially since the days of Sir Humphrey Davy and of Faraday.

The whole universe is in movement. The planets circle around the sun, the satellites revolve around their primaries ; each part and particle of matter continually and unceasingly attracts each other part of matter, according to the inverse ratio of their distance. The materials dissolve or combine in chemistry, according to the formulas discovered by scientific men. Everywhere we find movement, but movement not wild and without harmony. On the contrary, a directing power presides over all. A Supreme Wisdom directs all things in nature. Harmony, regularity, smoothness, and suavity is found in all the changes and movements of nature. Who can it be but God who keeps nature in such regularity ? Who but the Almighty Creator could have formed matter, so that in chemical union, the materials would combine in just such proportions, and that forever, so that in chemistry we represent them by formulas, signs, and figures as unchangeable as eternal truth ? And man cannot change one of these laws of matter. He can only use them for his purpose. He cannot control the smallest particle of gas, fluid, or matter in the various changes taking place each day before our eyes. Thus nature sings its silent songs of the eternal harmonics of the Architect of the universe.

There is, then, all through nature what scientific men recognize as force, energy, action. Atoms and molecules

cannot give us any true idea of the nature, and of the origin of force. That is explained in a satisfactory way only, by saying that all bodies are composed of primeval matter and of substantial power. Matter is the source only of extension, while the form is the source of all activity, gravitation, molecular attraction, repulsion, resistance, etc. There is a truth admitted in science that passes almost as an accepted axiom. It is that force is something which cannot be destroyed. It may change from motion to heat, as when you strike a piece of iron it becomes hot. The energy of heat of the sun lifts the waters from the ocean, which afterwards fall on the earth, give it fertility and turn our machinery in mills and factories. All this comes from the vast energy of nature, set in motion at creation by the Deity. Therefore, all motion comes from God ; he is the primeval cause and source of all motion, all movement, all action in nature. All substantial forms in nature, which attract, repel, or move, only derive their primitive force or energy from him. Thus the force which moves this pen to show forth his wonders hidden in nature, comes from the heat of my body, like a wonderful steam engine, turning the heat of my body into movement, and moving my muscles. That comes from the food I eat. That food was prepared by vegetable and animal life. Beings with life drew that movement or energy from the sun's rays of light and heat, and that energy of light and heat in the sun came from God at creation, which it still sends out to surrounding worlds. Thus all movement comes from him, the Creator and Prime Mover of all things.

The primeval matter of bodies cannot exist without the substantial forms with which each separate part of matter is endowed. Matter and form, then, are coeval and inseparable. It may be recognized as the primeval element which Lockier has lately discovered in his researches with the spectroscope. That matter pervades all space and penetrates all bodies. Perhaps it is the ether which modern science says fills the interstellar spaces and is the means of conveying light and heat from the sun and stars to us. That ether or primeval matter does not prevent the revolutions of the heavenly bodies, because it has of itself no action, no resistance, for that comes only from the forms of bodies, while it has no form.

If any one is not satisfied with this theory, then we may go back to the atomic theory, and say that each separate atom or molecule is composed of primeval matter and sub-

stantial form. The attractions of the atoms, their indestructibility, resistance, and polarity; the propensity they have of grouping themselves in certain ways, so as to form bodies, comes from the substantial form of each body. From what we have said, the reader will easily see that all things are divided into two great classes, substances and accidents or modes. Thus stones, wood, trees, men and angels are so many substances, because a substance is something which can exist in itself, by itself alone, and independent of any other. Accidents or modes are those things which cannot exist alone, but which have their being in another. Thus color, light, heat, motion, shape, etc., cannot be found except in something colored, hot, moved, shaped, etc. Thought cannot exist outside of a thinking substance, as the mind. Thought partakes of the nature of mind. It is a modification of mind. Thus in God the Son is the thought in the mind of God, the Holy Spirit is the love of God. But these two persons of the Trinity are not separated from the Father. They all compose one God, one Deity. Thus what we find imperfect in creatures, we find complete and perfect in God, for in him everything is infinitely perfect.

Each substance, from the lowest grain of sand to the highest angel, acts according to the law of its nature. Their acts are different from their being. But it is not so in God; his essence and his acts are one and the same; his acts are the bringing forth of the Son, and the procession of the Holy Spirit, who are one with him. It follows from all this that all creation is but a revelation of the Trinity. For the Son is the plan and the truth of the Father, and all creation is made according to the perfection of him. He is the eternal Plan of all created things. Every truth is but a figure of him. The Holy Ghost is the good and all things are good, and their goodness re-echo the goodness of God.

Our five senses see but the appearance of things, while our mind penetrates behind these, and judges that behind and under these appearances are such and such substances. The ancients knew this well, for they called the mind the intellect, which means in Latin to read within, for the mind penetrates within and beyond the modes and appearances, and seizes the nature, the substance, and the essence of the things around us. Therefore, science cannot contradict the Christian teachings of the real Presence of the body and blood of Christ under the sacramental species of bread and wine, for we see only the natural appearances of bread and of

wine, but by a continual miracle the substance of the spiritualized body of Christ is there in place of the substance of bread and wine, which was changed into the substance of his body and blood. This takes place by a miracle, and it is the continued miracle of the Incarnation, but it is beyond the power of the senses to deny or affirm this fact, for the senses see only the accidents or modes of substances and can never see the substances themselves, for that belongs to the mind.

We pass, therefore, from the study of the various theories of the substantial constitution of matter to the accidents, modes, qualities, &c., of matter, or from chemistry to physics. Here in the following chapter we will consider the actions of material things where the substances do not change.

CHAPTER III.

The Appearances, Accidents and Modes of Matter; or, Attraction, Light, Heat, Electricity, &c.

The first quality we notice in material things is extension; that is, all bodies have length, breadth, and thickness. Many bodies, when compressed, return again, like a spring, to their former volume. That appears especially in the gases, as air, which is very elastic. Most solids and fluids, and, in fact, all gases are elastic. The elasticity of bodies is the foundation of music. For when bodies are moved or compressed they fly back, because of their elasticity. The elasticity being regular, they impart their beats to the air, which carries the sound impulses to the ear. Therefore, music is the regular succession of beats, and noise is the irregular beats. The more rapid the beats, the higher the tone. Sound travels in all elastic bodies with varying velocity, it being generally quicker in solids than in fluids or gases. Sound travels in the form of waves, as a hollow sphere, in every direction, if not obstructed, somewhat like the waves of water on a placid surface when disturbed. But the waves of water move up and down at right angles to the path the waves are travelling, while sound waves move in the direction of sound. Sound waves are condensations and refractions of the air. That is, the air in one place is a little denser than just before or behind it, and in the next instant it will be thinner. This is caused by the sound-giving body striking the air in front, and then swinging back. Thus it leaves the air thinner, till other air rushes in to take its place. These form the waves of sound. The more rapid the strokes, the more rapid the waves. These give rise to the high tones of sound. The slower the vibration, the slower the waves follow each other, and the lower the sound. But the farther one wave is from another, or the stronger the object beats the air, the louder will be the sound. Each sound-giving body strikes the air in its own peculiar way, and that makes each musical instrument give out its own unique sound. The reason of this is because the whole sound-giving object vibrates as a whole, and that will be the fundamental tone. But besides the whole vibration, the

sound-giving body breaks up into different lengths, which have a perfect mathematical ratio with the whole body, and each of these particular lengths vibrates independently, and gives out each its own particular tone. These added to the fundamental tone, increase it or give it a peculiar quality. Thus the air in the pipes of an organ, or the strings of a violin, vibrate not only as a whole, but they also break up into sections, and each section vibrates alone, independent of the others, and sounds its own highest tone. These tones are called the harmonies. They give peculiar qualities to the instruments, and enable us to tell one instrument from another, even when all sound precisely the same fundamental tones. The cause of this puzzled many scientific observers, till Helmholtz discovered and investigated the cause of each musical instrument giving out its own peculiar tone.

In the violin, harp, &c., elastic strings vibrate, and a certain portion of confined air vibrates in unison with them, and thus increases the volume of sound. In the flute, pipe organ, and in all wind instruments, it is the column of air itself which vibrates. As air is one of the most elastic bodies, wind instruments are the sweetest.

When two or more pipes or instruments sound together, so that each makes exactly the same number of vibrations in a given time, each imparts its own timbre and it will be more beautiful than the sound of one of them alone. But if one gives out double the number of beats, it is an octave above. When one sounds a fundamental tone and the other gives a number which is a multiple of the other, and both keep this relation, they will harmonize and the effect will be sweet and beautiful. But if they do not keep this mathematical ratio, they will disagree, and cause discord. Thus if an organ pipe beats 300 times in a second, while another beats 400, the effect will be sweet and pleasing, for each fourth beat will be increased by an extra beat from the higher note and they will form a third tone. These rules hold good all through music. But it would lead us out of our course to go deeper into this beautiful study. By an instrument called the sirene we can count the number of vibrations in a second.

We have said enough to show that music is founded on the science of mathematics. It shows a regularity and harmony in nature. If the air, which carries music to the ear, were not elastic, we would scarcely hear a sound, and the world would be dumb, and silent, and man and ani-

mals would have useless organs of speech. But see the design and the harmony reigning everywhere! Who could have designed all this but God? Remember, reader, that we have only lately began to find out the secrets of nature. But when we go deep we are startled at the transcendent wisdom of the Creator and Designer of nature, who can be no one else but a Supreme Being. All shows that matter is ruled by the strictest laws, that God presided over its creation and laid down its rules to make it harmonious, and that he still presides over nature by his laws. The harmony and sweetness of music delight us, for they tell us of the sweetness and harmony of God, who rules matter by his wonderful laws, and made use to study and contemplate his harmony and beauty during eternity in heaven, which is the possession of God.

Again, some bodies can be drawn out into an exceedingly fine wire, or beaten so thin as to cover a large surface. That is the ductility of matter. Gold is the most ductile body we have; it can be rolled so thin that light can easily pass through it.

The whole universe is in motion and we know not a particle of matter at rest. The planets circle around the sun, the sun himself is travelling around some hitherto undiscovered centre, carrying with him his court of planets and moons, and when the sun, with his great solar system, will have made a complete and mighty revolution in countless eons of time, in ages so long in the future as to be incomprehensible to human mind, then the mighty pendulum of time will have only given one tick in the vast, immeasurable duration of God's eternity. All matter is in motion. The fixed stars composing the milky way appear as though they were approaching on one side, and receding on the other. Each mighty system of burning suns, composing the nebulæ and milky ways of far-off worlds, are so far away that although light travels about 192,000 miles in a second to reach us, still the light which left these far-off suns 100,000 years ago is only now entering our eyes and landing on our shore of vision. All these are in ceaseless motion. Matter, by its property of inertia, cannot move, but rests where it is placed. Who moves, therefore, these bright suns and heavenly bodies but God, who gave them this movement at their creation? That impulse, which in its origin was divine, still continues, for still they move, because they have met with no obstacle. God hung them on the law of universal gravitation. He weighed them in the

hollow of his hand, and poised them in the depths of space and hurled them forth, knowing the size of each and weighing the mass of every one so as to know the exact distance from each other where to place them in the heavens. Still, to show us that he placed them in a regular manner, he created the erratic comets to shoot towards the sun, to follow forever their wild parabolic courses, to visit different solar systems, and to be the tramps and wanderers of the heavens. We see by the example of the meteorites that heavenly bodies would fall into the sun and onto the earth if God had not at creation placed them according to the laws of gravitation and of astronomy. Truly the noble, upright, and educated mind cries out: How wonderful is God! Who shall deny the wisdom and creative power of the Eternal? The astronomer figures out the time it takes a heavenly body to complete its revolution around its primary. Then he measures the distance from centre to centre; he goes through a long series of figures to come to these conclusions. From these he can readily compute the weight of the heavenly body. But in this he is only in man's feeble way going over the footsteps of the Creator, who at the beginning weighed these mighty bodies, so as to know the exact distance apart to place them, and the velocity they must have so as not to fall into each other. This is the way the astronomer weighs the suns and the planets.

This was never attempted till man discovered the law of universal attraction. All bodies attract each other according to the inverse ratios of their distance apart, and according to the direct mass. That law Sir Isaac Newton discovered, and it is called universal attraction. That simple, yet universal law keeps all the heavenly bodies in their orbits, and keeps the earthly materials on the surface of our planet. Without that simple, yet universal law, all would fall into chaos and anarchy. Why do things attract? Why does an apple fall to the earth? That set Newton thinking. What mysterious force draws all material nature together, and why does it extend to the farthest confines of material space? It is an unsoundable mystery. Some writers say it is God. It is certainly the most wonderful example of his far-reaching and mighty hand. In its simplicity and universality, it is an image of him who hold all things by that simple, yet universal law, a figure of his only simplicity and universality. That simple law holds together stupendous worlds and mighty suns, and systems of fixed stars.

We know not but what the substantial form, with which each sun and planet is endowed, attracts the form of every other, that the substantial form of the earth attracts the form of the materials on its surface, and that this accounts for attraction and universal gravitation, the image of him towards whom all things tend, and to whose praise all nature sings its hymn of glorious harmony.

Things are not attracted according to their size. Thus lead, gold, and platinum are very heavy, while aluminium, and other metals, are lighter. But gases, as air, hydrogen, &c., are very light. The earth attracts them less than the others. This evidently comes from the substantial form of each, as all action, such as attraction, &c., comes from the substantial forms.

The materials of the mineral kingdom appear under three forms, the solids, the liquids, and the gases. Thus water, a liquid, by more heat becomes steam, a gas; with less heat it is ice, a solid. But its substance does not change. Cold is the absence of heat. By cold, then, we can change the refractory gaseous substances into liquids and solids, and by heat the solids again change into liquids and gases. Heat, then, plays a great role in nature. It evidently rouses the substantial forms of matter into greater activity. Scientists claim that heat is a mode of motion, a trembling of the atoms; the more they move or tremble the hotter is the body. Heat stimulating the substantial forms of matter to greater activity in this way, aids chemical composition and decomposition in the mineral as well as in the vegetable and animal kingdoms. Thus, without heat, plants or animals cannot live, things cannot grow, and no life could exist on this planet—all would be solid and the earth would be soon covered with arctic ice. Heat being able to dissolve all minerals into gases, as we see in the sun and the fixed stars, the higher the heat it has the more gaseous the substance. These gases are invariably the most active agents of the mineral kingdom. Thus as the gases, air, hydrogen, &c., are ever active, subtle, invisible to the eye and seen only by their effects, they approach nearest to the spirits of the intellectual world, who are invisible and seen only by their effect. Thus there is a remarkable graduation of beings. First the minerals, with their hidden mysterious activities of attraction and repulsion. But they move not. They must be moved by others outside themselves. Then come the fluids, as water, mercury, &c., which move to find their level, then the gases, more active still, up to the

hydrogen, in countless streams, ever shooting from the sun.

From this we pass to living principles, or to the spirits in vegetable, animals and man. The living principle form or spirit in the vegetable is slow in the animal, more rapid in man in the mind, like lightning in the angel, quicker still in God, infinite in rapidity.

One of the remarkable modes of matter is light. Formerly Sir Isaac Newton, with many of his disciples, supposed that light was composed of numerous small bodies emitted with great rapidity from the source of light. That is the corpuscular theory. To-day light is supposed to be the vibrations of ether, a thin, subtle, invisible, unweighable, intangible material, which stands on the borders of nothingness and may well give us the idea of primeval matter explained before. It exists in and fills all space between the stars, everywhere like a shoreless ocean. Ether enters all bodies, causing molecular attraction, gravitation, galvanism, electricity, &c. This is the undulatory theory of light. The sun or any light-giving body, sets this ether in vibration at the amazing velocity of from 456 billions for red light, to 667 billions for violet light in a second of time. Thus color is caused by the greater or less rapid vibration of the ether. These vibrations are like waves, somewhat like the waves of water when disturbed.

When light from a lighter enters a denser medium and at an angle to the ray, it is turned out of its direct course and bent towards the thicker part. When it passes again from the denser to the lighter medium, as from glass into the air, it is still again bent or reflected in the same direction. According to this law of light all optical instruments, as telescopes, microscopes, &c., are made. In this case they are called refracting telescopes. According to this law all magnifying glasses are made. Still again, taking advantage of the law that when light falls on smooth, bright surfaces the rays will be regularly reflected, so that the ray leaving the surface will make the same angle with that surface as when it fell upon it, we construct refracting telescopes. Thus there are two kinds of telescopes, refracting where the rays of light are turned aside by passing from thin to denser media, as from air to glass, and the reflecting telescopes, wherein the light is turned aside by being reflected from bright metallic spectrums.

Here again we see the foot-steps of the great Geometrician of nature, God, who made these laws. In fact, there are numberless laws regulating light, which are as invariable

and as unchangeable as nature itself, and the farther we penetrate the wonders of optics, which is the science which treats of light, the more we are astonished at the wisdom and knowledge of God, who made and keeps these laws in force. If we allow light to pass through a prism we resolve it into its seven primary colors, the lowest being red and the highest violet. This gives us all the colors of the rainbow ; united together they produce white light. Beyond the violet are found the invisible chemical rays, and beyond the red are the heat rays. If we magnify them still more, we find the colored band striped at right angles with numerous dark rays. By burning various substances, as iron, calcium, sodum, &c., we find that they give out bright rays exactly agreeing in size and place with the dark rays in the solar spectrum, or light coming from the sun, as we described before. This puzzled scientists for a while, till they discovered that the dark lines in the spectrum of the sun were caused by the gases of these metals floating in this atmosphere, and absorbing their own peculiar ray, the precise one which each metal gives out when burning. The instrument by which this is studied is called the spectroscope ; by it we can find out of what material each of the fixed stars is composed.

When light falls on any object it is divided into various parts. A part penetrates into the substance and is lost, or it passes through the object, and then we call it a transparent body, as glass. If all is lost it is called an opaque object. If all but one of the primary colors pass through it, it is a colored transparent object or colored glass. In these cases the object through which it passes has the property of dividing the ray of light into its primary colors, and absorbing all but one color. Thus a thin sheet of gold absorbs all the colors of white light except green, and all objects seen through it will look green. Light, again, falling on bodies, for the most part is reflected back like an echo in sound. If the surface be regular, that is, smooth, the rays of light will be reflected regularly, and it will be a mirror. If the surface be irregular, the rays will be echoed back irregularly, exactly in agreement with the outlines of the object. These rays entering the eye, enable us to see surrounding objects. But white light is composed of the seven primary colors of the rainbow. Some objects have the property of absorbing all these rays, and reflecting nothing to the eye. In that case the object will be black. Again, other things reflect all the rays of light which fall on them and they are white. But many surrounding things absorb

one or more of the primary colors, and reflect the others. In these cases the objects will be colored. Thus the leaves of plants absorb all the colors in each ray of light, and reflect only the green, and therefore nature is clothed in this green color, which is so pleasing to the eye, because God made the eye to rest on the surrounding landscape. A red object absorbs all the other colored rays, and reflects only red, and thus it appears red to the eye. In living beings the parts of light lost or absorbed, and which are not reflected back, are used in chemical action in the growth of plants, animals, and in the human body. That is why it is so cool under trees. Light, then, acts in a chemical way on matter, and that is the foundation of photography, photo-engraving, and this property of light is very extensively used in the arts and sciences. But every part of optics, as the science of light is called, everything shows design. Each ray of light decreases like gravity in the inverse ratio of the distance from the source. The laws of light are wonderful. All is harmony and all according to the laws of mathematics. Here again appears the hand of the great Mathematician, who at the creation of light laid down its laws, and these laws are still in the strictest way enforced—all reflecting the bright face of the Eternal.

Gravitation, attraction, light, heat, and magnetism, follow the same general law, decreasing or increasing. according to the inverse ratio of the distance. Here we mentioned magnetism, that is, a certain attraction which the loadstone has for iron and some other materials. It exerts its force through the hardest substances independently of the thickness of the body placed between. It resembles gravitation in some respects, but not in all. It is evidently electric in its nature, but the secret of its intimate nature is still hidden from man. Why does the magnet attract? We know that the needle of the compass points to the poles because of the streams of electricity caused by the heat of the sun, as the earth revolves. These currents of electricity turn the needle of the compass at right angles to themselves, according to a law of dynamic electricity, and thus they ever keep the points of the needle towards the north and south poles of the earth.

But what is electricity? Only in modern times has that wonderful power been harnessed and used for man's benefit. We use it on every side and in many ways: to transmit intelligence with lightning quickness, to light and warm our homes, to work our arts and to minister to us in a thousand

different ways. Thales and the ancient Greeks, who first saw amber attract paper, never dreamt of the force they had developed. Modern scientists say that electricity is a movement of the atoms. But as the latter do not touch each other, it is impossible to suppose that this jar could pass from one atom to the other, with the amazing velocity of 282,000 miles in a second of time, when passing through a silver wire, the best conductor we know. Some materials, as silver and copper, allow the electricity to pass through them easily and rapidly, while others, as glass, silk, dry wood and others, allow the electricity to pass slowly or not at all. The latter, then, serve to isolate the electricity. This mysterious force cannot be a fluid, as was once supposed, for no fluid could have such an amazing velocity or produce the remarkable effect of electricity. What is it, then, but the substantial form of the metal in action? The substantial form, which is but a weak figure of the spiritual and unseen world—that substantial form which is whole and complete in each part of matter, produces these wonderful effects of electricity. Before the electric energy can act from one wire into another, they must be closely and substantially united. There must be such a connection between them that they are practically as one substance. Thus, when one end of the wire of the submarine cable on the American shore is excited, the whole substantial form of the cable is excited, and produces its effect on the other end in Europe, because the cable is and acts as one substantial whole. This is the way with all electric phenomena. In a generator for the electric light the wires of the generator do not touch the wires which carry the current to the lamps, but excite the form of the long wire wound around the bobbins and sets them all into action, and the result, our streets and houses are lighted up with the brightness of the sun. No other theory than that of primeval matter, and substantial form, can give us any satisfactory explanation of the various and surprising effects of electricity. We are only beginning to discover the uses of electricity. We have only touched the vast store-house of electric secrets still hidden in the bosom of nature.

Ampere, Faraday, Galvani, and many others, investigated the laws of electricity, and as usual they found that same wonderful regularity and harmony in them that we find in the other phenomena of nature. God, with all his regularity and surprising wisdom, is seen there as in each part of nature. We cannot see that electricity. It is as near

like a spirit as we can conceive anything material to be. It rests on the confines of the physical forces before we step off into the world of spirits. Still all is regular, all act according to the most unchanging laws, ruled by mathematics, as in gravitation, heat, sound, and light. The Infinite touches it with his hand and leaves on it the imprint of his own regularity, order, harmony. All is truth. Everything takes place to-day as yesterday, as a thousand years ago, and will to-morrow, and as long as nature exists. Nature does not lie because it is true, and it is true because Truth made it to show us his own divine Truth and eternal perfection, who is the Truth of the father, the Son born of the Divine Mind.

When two or more substances unite so as to make a new substance, as in chemical action, the forms of both unite and compose the new form of a third substance, differing in many respects from the other two forms, but still preserving many of their original qualities. This union of materials does not take place at hap-hazard, but according to changeless laws. They unite by molecular attraction, and dissolve by repulsion. Some unite easily, others by the aid of light, or heat, or electricity. The forms of the first combine to make a new form, which is a combination of the others. The new form, then, will be more complicated than any of the former, for it is made of two or many simpler forms. It will, therefore, show a greater variety in its acts. This we see especially in crystallization. For example, the simple elements, as oxygen, hydrogen, gold, iron, &c., seldom or never crystallize. But, take water, which is composed of oxygen and hydrogen, when it freezes it does not solidify in any irregular way, but it crystallizes into regular forms. Catch a snow-flake and examine it carefully under a magnifying glass, and you will find that it is composed of beautiful crystals, arranged in the most regular manner. That took place according to the activity of the form of water. Take some salt and dissolve it in a glass, and let it dry, and the sides of the glass will be covered with beautiful crystals. And it is the same with all compound substances. They all solidify in crystals. But each substance has its own laws and regulations. Thus salt, bromide of potash, sugar, &c., when crystallizing, form cubes, or they crystallize according to right angles, and measure 90 degrees. Water crystallizes and forms an angle of 60 degrees. Each substance crystallizing invariably shows us the same degree. Therefore, its sides and walls will be always the same if not disturbed when

solidifying. All this shows that God laid down the laws of crystallization according to the strictest Geometry. The great Mathematician of nature here shows his power and wisdom. He is behind the wonders of the crystal. Take a solution of matter which will crystallize, enlarge it if you wish to thousands and thousands of diameter by the electric light and the microscope, and you can see the crystals growing before your eyes with the most amazing rapidity. They start first from invisible points and grow larger and larger, yet from the very beginning every line and angle is perfect. The form reaches out, seizes the materials and builds them up more perfect than a man makes a house. The smallest crystal is as perfect as the largest. The force or power which does that cannot be atoms, but the substantial form which is the source of all action in matter. The phenomena of crystallization has always astonished scientific men, and no wonder, for it is the highest act of the mineral kingdom.

The forms of the mineral kingdom cannot be separated from their primeval matter, otherwise the whole thing would cease to exist, and it would be annihilated. The substantial form is a figure of the spiritual, for all action comes from the spiritual world, from God, or from a spirit he made unto the image of himself. The forms, therefore, which are the forces of nature, are quasi-spiritual. They were made by God to represent him, and the chemical combinations, and the phenomena of crystallization, take place in the most regular manner, according to the eternal rules of arithmetic, of geometry, and of trigonometry, to represent and to bring to our minds the changeless and the eternal regularity of God, the Mathematician of the world. All is truth, for all things were made according to the True, who is the Son of God, the Truth of the Father, the Way, the Truth and the Life, who "in the beginning was the Word and the Word was with God, and the Word was God."

Scientific as well as other men see in nature a power they call force. In the mineral kingdom it is gravitation, molecular, attraction, light, heat, electricity, &c. In plants and animals, and in man, it is seen in growth, nutrition, and sensation, and in animals it is muscular contraction and sensation; in mind it is thought and the acts of free-will. Force is eternal; it cannot be destroyed; it may appear one time as attraction, or heat, or motion, or electricity, or in some other form, but it will remain forever force in some form. We cannot separate force from matter, nor thought from the mind. They remain within the matter, or within

the mind, yet they are distinct from the substances, or thinking mind, within which they dwell. So when we rise to the infinite mind, we find there the infinite force, which is the Son. He cannot be separated from the Divine substance. He is God. God then is One in nature, but Three in Persons.

The appearances or modes of things, that is, their shape, color, size, light, heat, electricity, &c., and qualities of this kind, act on the senses, while the mind judges that behind such qualities are such and such substances. Substances, then, are made known by their qualities, or their modes. The ideas in the minds of men and angels are made known to other minds by expressed words, and thoughts are modes of mind. But in God, his eternal modes or qualities, is the Son, and the Holy Spirit. Thus, he is made known by the Son and Holy Spirit, the thought of the Father. Therefore, God, in manifesting himself by the Son, and by his Spirit, follows the natural and logical course of nature. Thus the "Word was made flesh, and dwelled among us," to show us God.

As chemistry treats of materials, which change their nature or substance, so physics, or natural philosophy, treats of the phenomena of substances which do not change in their nature or substance. Therefore physic dwells amidst the modes or accidents of matter, while chemistry relates to the changes of the substances themselves. The modes or accidents of matter are various and complicated. Thus, physics tells us of force, movement, weight, universal and molecular attractions. It speaks of hydrostatics, or of the modes and laws of still and moving water, liquids, and gases. There we find the nature of sound, and the fundamental laws of physical matter, of sound, music, heat, &c. From that we pass on to the consideration of heat and study its cause and the other theories of its nature. We are led from that to the better understanding of light, magnetism, and to penetrate the secrets of electricity. All this time we have not passed beyond, but have remained in the domain of the accidents or modes of matter.

Thus far we have treated of the forces of nature seen in the mineral kingdom. But there is another force, more surprising than these physical forces. It is seen in living beings. It is called vital force. We will treat of that vital force in the following chapters of the vegetable kingdom.

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The Vegetable Kingdom.

CHAPTER IV.

How Plants Differ from Minerals.

We have given a rapid sketch of the mineral kingdom, and found that each perfection of the mineral represents a perfection of God. As the colors of the rainbow blend insensibly into each other, as nothing abrupt is found in nature, thus the passage from the mineral to the vegetable appears not at first to the eye. But longer study will soon convince the sincere seeker after truth that an impassable gulf separates the non-living from the living—the mineral from the plant. This gives rise to the two great branches of chemistry, inorganic and organic chemistry. The first treats of the substantial compositions formed by the laws of the mineral kingdom alone, the latter investigates the substantial compositions of bodies belonging to the vegetable or animal kingdom.

The plant differs from the mineral in it origin, chemical composition, material constitution, development, duration, manner of preserving itself and way of reproducing its species. The mineral comes by chance. Thus, any cause may break off a piece of a stone, of iron, or of clay, and each piece, no matter how large or how small, will be in itself a complete being. Many stones together, or clay, or sand, by the action of fire, water, or chemical changes, may form large stones or rocks. But it is not thus with plants. They come only from other plants. They cannot be made of earthly substances without a living germ, which came from another living being like to itself. Materials of the mineral kingdom may be formed by more or less heat, but too much heat

or cold will soon destroy any living organism. The living beings must have the light and moderate heat in order to live and to bring forth others like themselves, while the rocks and mountains, which came from the fiery birth of the world, can exist independent of heat and cold and of vicissitudes of the world, which would soon kill any living being. The mineral passes by heat or pressure from the solid to the liquid and into the gaseous states, and back again to its original condition, without being destroyed. But the living thing cannot stand that and live; a little pressure will crush the plant, a large wound will destroy it.

One of the most apparent differences between the living and the non-living beings is that each plant, animal, and man has an organism, that is, a living body, within which its vital actions take place. But a mineral has no such structure. For in every part of the mineral you find the same substance and the same materials. A piece of iron is homogeneous, that is, the structure is the same in one part as in the other. It is iron or a mixture of iron all through. But it is not thus with the living organism. Each part shows a different structure, arranged with more or less art, all tending to the perfection of the individual. The bark is not formed of the same structure as the leaves or the woody fibre. Each part and member is composed, built up, and formed in a different way. The nearest approach to this in the mineral kingdom is crystallization. There the liquids becoming solids take regular forms, according as the great Geometrician of nature planted in them these attractions and repulsions for their natures. But the structure of the crystals show that each and all parts are composed of the same materials. You may break a crystal into the smallest particles and you will find the same angles, the same sides, the same materials in the very smallest, identically the same as in the largest crystals. But it is never so in the living organism. In the crystal it is the same structure, the same angles, the same material in each and every part, while in the living organism the structure differs in different parts and the materials are no more the same. It is true that if you break off a part of a crystal it will reproduce by itself the broken part again, like to those animals which reproduce an organ when lost, as the lobster, when it loses a leg, will soon reproduce another limb. Take a maple tree and what a varied structure. You have the bark covering it like a skin, the woody fibre, giving it strength, the pithy heart, the limbs, spreading out, the leaves, which breathe

out oxygen and take in carbonic acid gas, the roots to suck up the waters from the ground, all these work together for one unique purpose, growth, and nourishment, all for the good and the perfection of the whole individual tree. Thus all unite for the good of the one organism or plant, while in the mineral each part is alone, one does not act for the other, each is united by its accidental attraction to all parts of matter, and one piece of a stone is not for the perfection of the whole stone, but for itself. The stone can remain a stone if it be broken off, but you cannot break off all the leaves, bark, or roots of a vegetable without destroying it as a plant. Thus each plant or animal is one complete individual, existing in itself and by itself, reminding us of the one Great and only God, who alone exists in himself and for himself alone.

The mineral may be of one material, as gold, iron, oxygen, &c., and still be complete in its nature, or it may be composed of two or three, or of an indefinite number of materials. But no living organism can be composed of less than three primary elements, carbon, hydrogen, and oxygen, for the plants, and to these must be added nitrogen in the animal organism. The vital principle of plants or substantial form produce starch, sugar, and glucose, while the animal organism produces fat, gelatine, fibrine, etc. The basis of all vegetable matter is cellulose, formed of carbon, hydrogen, and oxygen in the proportion of $C_6 H_{10} O_5$, while the basis of all animal tissue is gelatine, composed of carbon, hydrogen, oxygen, and nitrogen, in the proportion of, by weight, 50.4 C, 6.64 H, 24.64 O, N, 18.34, and sulphur 0.7. In water the proportion of hydrogen to oxygen is as one to two in volume, and as one to eight by weight, while in cellulose it requires 24 molecules of carbon, 20 of hydrogen, 10 of oxygen, or in weight, 70 parts of carbon, 10 of hydrogen, and 80 of oxygen.

The mineral fibres may lay one beside the other, as in wire or wrought iron, or in flakes, as mica. These may be changed, broken, destroyed, and the mineral will remain the same mineral. Carbon, or pure coal, which, crystallized, becomes the diamond, added to iron makes it steel ; tin with copper added makes brass. But nothing can be added to the living organism but what it will take and assimilate, and if it be forced into it will produce injury, disease, and at last, death. Thus, while the mineral is passive, subject to external forces, the living organism has within itself a power all its own, a form which controls and acts according

to its own laws. The living organism is animated by a force which comes not from without, but from its intrinsic nature.

The structure of the mineral is according to straight lines and angles, as in the crystal, or it forms into round globes, as the earth and planets, acted on only by gravitation alone, while in a fluid state, matter takes the form of a globe. Acted on by molecular attraction, when solidifying, matter, especially when of many elements, crystallizes. But in the living organism we find a structure entirely different. In place of the round globe, formed by attraction, we find the whole organism made up of cells, like a number of little egg shells with the solidest and more dense parts around the outside. Thus the wood of plants, the muscles, tendons, nerves, and bones of animals, are all composed of numerous cells. This shows that a force superior to attraction, and above the forces of the mineral kingdom, lives in the organism of plants and animals. These cells were made and built in opposition to the forces of brute minerals, which forms the round drop, or the mighty planet. The cellulose of plants is lighter than the glucose of animals, hence, plants generally float in water, while animals sink. The vegetable cells are larger than the cells of animals, and the latter requires a stronger microscope in order that we may examine the structure of the animal.

The materials of the mineral kingdom come into existence by accident, and are not born of others like themselves. In the same way the minerals cease to exist by accidental causes outside themselves. They are the product of simpler materials uniting to form compounds, or they are formed by the dissolution of compounds, and that takes place at any time, under any circumstances. No stated period is given them, during which alone we may form a new chemical or mechanical compound. Hence, the mighty mountains were upheaved at various times, and they may last to the consummation of ages, unless some cause outside themselves comes to destroy them. The stone may be broken off at any moment and it will remain a stone perhaps forever. All is undetermined regarding the production of a being of the mineral kingdom. But not thus with living organisms. They are born of others like themselves. They are generated by other living organisms, in which God has placed the power of generating other creatures similar to themselves. Then the forces of the mineral kingdom can never produce a living being. That was finally settled by the investigations of Tyndall and of Pasteur. Then the theory

of spontaneous generation, which claimed that the crude forces of nature could, under favorable conditions, produce living creatures, is false, contrary to science, and to common sense. The living come only from the living. The first plants were produced by the direct act of the Creator on nature. "Let the earth bring forth the green herb, and such as may have seed, and the fruit tree yielding fruit after its kind, which may have seed in itself upon the earth, said the Lord, and it was so done." Thus, by the interference and power of the Deity, the earth was clothed with plants, each with seed to propagate its kind unto the end of time.

Once produced, the plant or animal has a fixed period of duration. The organism grows in size and shape, but strictly according to its kind. It grows larger and stronger, till it attains its growth. After a certain period of time, it begins to grow weaker and weaker as it grows older. The materials taken in as food are still deposited in the living structure, till the tissues and fibres become too dense for the vital forces to act any longer. Then it dies. Therefore, death by old age is caused by the structure becoming too dense. Such is the opinion of Cuvier, the great French naturalist. But during all this time, lest the species might die, the organism has produced others like itself, either by breaking off a portion of it structure, as in the lower forms of vegetable and animal life, or by seeds and by generation, and the birth of its young in the higher and more perfect forms of vegetable and animal life.

Crude matters of the mineral world can do nothing to increase and develop their being. When caused or produced by exterior agents, the minerals remain the same till acted on by other forces outside of and independent of them. They have no power or force which completes their own being. It is true they attract and repel other bodies, but they do not take materials into their own substance, which completes their nature. They only increase their size, volume, or heft by the addition of materials added to them. On the contrary, the plant receives at first, from its parent, only a little living cell, or bundle of cells, which is the seed or germ. By a principle and a power within itself, by and under the influence of moisture, heat, and light, it sends out in one direction a root, in the other a stalk, and both grow and develop, according to the laws of the kind of plant to which it belongs. The root increases in size, the stalk shoots up, sends out leaves, and covers itself with bark. It continues to grow larger, attains the size required

by the species. It sends out flowers, covers itself with fruit, propagates by seeds, attains its end, then dies. When it lives more than one season, in the fall it rests till the heat and sunlight of another spring revives its hidden powers. If the seeds be kept in a favorable place, they rest for years till favorable conditions of humidity, soil, and heat rouse their hidden, subtle forces. The mineral kingdom shows nothing to tell us of this mysterious power which plants have of developing their own individuality by a vital force within themselves.

Besides, the materials of the mineral kingdom cannot accommodate themselves to their surroundings. They always remain where they are put. A stone will not stir till changed by some power outside itself. On the contrary, the plant will push the stones and earth out of its way, in sending down its roots. It will turn aside its roots if too large a stone is in its way. It takes the materials of the mineral kingdom, such as silica, lime, potash, &c., which tends to crystallize, and turns them to its own purpose. It makes use of and controls capillary attraction in the circulation of the sap. It pumps up water against the attraction of the earth. It makes use of, and turn to its end the chemical forces of nature. It upsets the laws of hydraulics, or of flowing fluids, in the circulation of the sap. In a word, all the forces of the mineral kingdom are turned to the use of the living organism, all shows that there is something, or some force in the plant which is far above, and more powerful, than the laws of the crude brute mineral kingdom.

What we have said regarding the vegetable, may be said, and in a higher degree, regarding the animal organism, and for a stronger reason regarding man, whose body is the most perfect and most wonderful organism that ever existed. The human body is the greatest of all chemical laboratories. The smallest cell in the body is most wonderful, yet the whole body is composed of countless numbers of cells—chambers in which are air, oxygen, hydrogen, masses of solid matters, gases and vapors, form, unite, dissolve, are built up and dissolved. By chemical action, controlled by the vital forces, these are changed, burned up, and thrown out, or built into the organism.

The blood is a living river, carrying its ceaseless supplies of serem, blocks of chalk, slabs of tartar, pieces of bone, particles of ash, strings of albumen. Here all is activity. An invisible force reaches out, unseen hands grasp the materials wanted, and in one place builds bone, in another flesh, in

another nerves, in another an eye. This force we see in the living organism does not work uselessly. All is harmony. All is directed by an all-seeing Intelligence, inconceivably more wise in science, mechanics, chemistry, hydraulics, mathematics, &c., than the greatest scientific mind which ever appeared upon this earth. What is this directing Mind, who, as it were, stands by the living force in the organism of plant, animal, and man, and teaches how to build up such an astonishing structure as a living organism? That supreme, directing Mind is God. For we grow without our knowledge, and all goes on unconscious to us. It cannot be nature, for nature is blind, crude matter, without sense, or life, or intelligence.

The place to study the workings of this wonderful Mind, which is God, is in nature, which is only his humble instrument. All nature tells of him and sings sublime hymns of his glories, of his power, and of his wisdom. As far as human science has advanced to-day, all men together cannot make a living organism. Not only that, but the whole human race never can make one single cell of the simplest living being. God does not make the living organism. He does a more wonderful thing. He creates from nothing the living vital principle, which builds up the living organism. In the following chapter we will treat of this living principle.

It is really astonishing how scientific and learned men attempt to prove that there is no difference between the crude forces of the mineral kingdom, and the vital forces of living organism. Absorbed in science, knowing little or nothing of God or of his nature, never studying the human soul, they end by denying God and the soul. Not knowing the sweetness of the hope of an hereafter, misunderstanding revelation, knowing little of the Christian religion, they doubt all. Most any fool or ignorant person can deny, but it takes no effort of the mind to doubt, but it requires wisdom to believe. Only the most learned men can see the agreement between science and religion, and the wise, deep student of nature sees the remarkable harmony in God revealed in nature as the Creator and God revealed in the Church, as the Redeemer of the world.

Hence, it happens that some men with little knowledge try to show that there is no difference between the forces of the mineral and the vegetable kingdoms, that living beings were developed by chemical and mechanical action from the mineral. From this they conclude that man is but a

machine, that he has no soul, that all there is of him is the body we use, that religion is a deception, and that there are no rewards and punishments in the other life, because man, like a beast, entirely perishes at death.

As far as the experience of the writer goes, these persons are lovers of themselves. They are filled with pride, and want to attract attention by the novelty of their new doctrines. They are sinners who want to stifle conscience so as to continue in their sins. Whether a man with sane reason can in his innermost heart say there is no God is very doubtful, for the image of the Creator is impressed so deeply in human conscience, that only the insane can wipe it out. Then, readers, beware of false science, which comes clothed in the innocence of the lamb, but within is the ravenous wolf to devour your soul and poison your mind. True science will always agree with true religion, for they both come from the same God, who cannot contradict himself. A science or a discovery may at first appear contrary to religion, but after deeper study and investigation it will be found in perfect agreement with religion. Without doubt the most unscientific and dangerous doctrine that was ever taught, is that by spontaneous generation living beings are developed from the mineral kingdom, without other parents than the forces of nature, for it destroys at one sweep the difference between the non-living and the living beings. It destroys the symbolism of nature, by which each creature resembles God its Creator. It destroys the immortality of the soul, degrades mankind, upsets all law and order, and would bring everlasting woe on mankind. These are but a few of the awful and direful results of infidelity, and the denial of God and of religion.

We now pass to the consideration of the different species of plants. This science has not yet progressed as far as some of the other studies in nature, and there is a vast field open for some one who can give us a just and harmonious classification of plants.

CHAPTER V.

The Different Kinds and Species of Plants.

At the present time more than 100,000 different species of plants are known to science. The ancients began the study of plants from the very earliest times. Thus the Hebrew Scriptures gives the names of about 70 different species. Hippocrates described 200 medicinal plants, Aristotle wrote two books on botany, Dioscorides treated of 600 species, while Pliny the Elder speaks of about 1,000 kinds known in his time. The disciples of these writers, during the middle ages, increased the number of the known species of plants to nearly 4,000 before the time of the great Linnæus. These writers studied the structure, modes of growth, fructification, and manner of life of various plants. They had divided them into various species and kinds.

But the great mind of Linnæus first reduced their discoveries to a system and thus for the first time gave rise to the modern science of botany. In 1735 Linnæus based his classification of plants on the variations of the stamens and pistils. This was an artificial classification, the best used up to his time, and it was therefore adopted everywhere in this country, as well as in Europe. He gave each plant two names, one meaning the kind or genus to which it belonged, the other the species or class. By this method he divided all plants into 24 great classes, according to the way fructification takes place. But this system does not give the size, shape and nature of the different plants, for it is founded only on the manner of reproducing its kind, or fructification. It is therefore imperfect.

Bernard de Jussieu first divided plants into a methodical system, according to their natural likeness or affinity one to the other. His work, celebrated for its precision, and containing 20,000 species, was published in 1789, by his nephew, Andrew Laurent. Many modifications of his system have already been published by his disciples. De Candolle adopts the descending method ; that is, he begins at the most perfect plant and describes each species as we descend to the lowest

known forms of plants. This system is much used in our day by botanists.

The primary division is into vasculares and cellulares. The vasculares has cellular tissues and vessels. This includes—1. The exogenæ, in which the vessels are arranged in concentric layers, the youngest layers outside. For an example of these, we cite the large trees of the temperate zone, wherein each year a layer of wood grows between the bark and the wood. Thus by these different woody layers, or rings, you can count the number of years it has lived, and you have the age of the tree. 2. The endogenæ, in which the layers are arranged in bundles, the youngest being in the middle of the trunk. For examples we cite the corn, the palm, &c. It is evident that the first kind grows from the outside by yearly layers, while the latter grows from the inside, hence the names of these two great kinds, exogenæ, growing from within, and endogenæ, growing from without. The exogenæ are again divided into the dichlamydeæ, in which the calyx and corolla in the flower are distinct, and the monochlamydeæ, in which these organs are not distinct, but form one perianth. Again the species dichlamyds are subdivided into the families of the thalamifloræ, in which the petals are distinct, and inverted in the receptacle; into the calycifloræ, in which the petals are free, or more or less united, always inserted on the calyx, and into the corollifloræ, in which the petals are united into a hypogynous corolla, or not attached to the calyx.

The cellulares are composed of cellular tissue only, and have no proper vessels, while the embryo has no cotyledons. They include the foliaceæ, or plants which have no sexes, only leaf-like expansions and the aphyllæ, or plants which have neither leaf-like expansions nor sexes. These latter are the lowest kinds of plants.

John Lindley, in 1846, published a work in which he adopts the ascending series, which we will give here, because it will be perhaps clearer to the reader than the other systems given above. We will give first the genus or kind to which the plant belongs, and then an example of a class belonging to that species or family. Although each kind has many classes under it, all agreeing in their general outlines, we will give only one species, familiar to the reader.

Beginning at the lowest form of life, he gives first algales, for example, seaweeds; fungales, ex., mushrooms; Lichenales, ex., lichens; Muscales, ex., urn mosses; Lycopodales,

ex., grasses ; Filicales, ex., ferns ; Arales, ex., arads ; Glumales, ex., grasses ; Palmales, ex., palms ; Hydrales, ex., naiads ; Narcissales, ex., amaryllis ; Amomales, ex., maranta ; Orchidales, ex., orchids ; Xyridales, ex., spiderwort ; Juncales, ex., bulrush ; Liliales, ex., lily ; Alismales, ex., alisma ; Amentales, ex., willow ; Urticales, ex., nettle ; Euphorbiales, ex., spurge ; Quernales, ex., oak ; Garryales, ex., garrya ; Menispermales, ex., moonseed ; Cucurbitales, ex., melon ; Papayales, ex., papaw ; Violales, ex., violet : Cistales, ex., rock-rose ; Malvales, ex., mallow ; Sapindales, soapwort ; Guttiferales, ex., clusia ; Nymphales, ex., waterlily ; Ranales, ex., buttercup ; Berberales, ex., barberry ; Ericales, ex., heath ; Rutales, ex., orange ; Geraniales, ex., crane's-bill ; Silenales, ex., pink ; Chenopodales, ex., amaranth ; Piperales, ex., pepper ; Ficoidales, ex., mesembryanthemum ; Daphnales, ex., laurel ; Rosales, ex., apple ; Saxifragales, ex., saxifrage ; Rhamnales, ex., buck thorn ; Gentianales, ex., gentian ; Solanales, ex., potato ; Cortusales, ex., primrose ; Echiales, ex., bugloss ; Bignoniales, ex., trumpet-creeper ; Campanales, ex., aster ; Myrtales, ex., pomegranate ; Cactales, ex., cactus ; Grossales, ex., currant ; Cinchonales, ex., honeysuckle ; Umbellales, ex., carrot ; Asarales, ex., birthwort.

CHAPTER VI.

What is Life

From what we have said in the preceding chapters, the reader will easily see that life is something above and independent of the forces of the mineral kingdom. Life uses, rules and controls the activities of the minerals. It bends them to its own purpose. When they get the upper hand and control the living principle, the latter cannot exist in the organism. That is death. But we want to go still deeper, and find out and know the innermost nature of life. To find out the innermost nature of a thing, we first study its acts and operations. That we will do in order to find out what life is. We find all living things move. Movement in the plant is extremely slow, while movement in the mind or in angels is extremely abstruse and rapid. Animal movement is the medium between these two extremes. Therefore, let us first study life in animals. Now, we know that an animal lives when it moves, and that if it cannot move of itself, but must be moved by another, then we know that it is dead. Movement here means not only a movement of the body, but also the circulation of the blood, breathing, sensation, or any kind of animal action. "First we say that an animal lives when it begins to have movement in itself, and we judge that it lives as long as this movement lasts. But when it has no longer any movement in itself, but must be moved by another, then the animal is dead by defect of life." Thus, with his usual wisdom, speaks St. Thomas. A being lives when it moves itself. The word movement here is taken in its widest meaning and signifies any plant or animal action or operation or phenomena, or even the acts of the pure spirit, as of the understanding and of the free-will in man or in any intellectual being. Here philosophy and science agree with common sense. For when the simple, uneducated people see that an animal cannot move in any way, then they say that it is dead.

The plant differs from the mineral in being one whole and

complete individual, formed of many materials, parts, and organs, but all tending to one and the same end, the completion of and the perfecting of the organism. The plant is composed of many members, but they all together make one whole, the individual plant. In the mineral, especially when composed of many elements, we see one whole with many kinds of attractions and repulsions, independent one from the other. But in the plant there is something above these actions and attractions and qualities and activities of the mineral kingdom. All operations in the plant tend towards two ends, the perfection of the individual organism, and the propagation of the species or members of its own race. In the mineral kingdom the attractions and repulsion of matter tend to conserve and hold together the individual thing, as a stone, piece of iron, &c. But no mineral grows or tends to perfect itself, or to propagate others like itself. All its acts come from the substantial metallic form belonging to each being of the mineral kingdom.

But living beings are higher in the scale of creation. They have a higher form, that is, they possess a substantial form, which has all the perfections of the lower forms of the minerals and more, that is, other powers which belong to the plant or vegetable kingdom. St. Thomas says: "The vital operations are called those whose principles are in living beings, so that they by these perform such operations." Then life is an active principle, which is in each living thing, and is the source of all its internal and external phenomena, acts, and movements.

In the words of St. Thomas again: "The word life is given to signify a substance which has the power of moving itself according to its nature." Therefore each living thing has within itself a vital form, or spiritual principle, from which comes forth all its acts, movements, and operations. As the mineral derives all its acts and attractions and repulsions and all its movements and its very being from the substantial form, which informs its primeval matter and makes it what it is, so each living thing has also a form, of a higher nature, which has all the perfections and operations of the mineral form in a more developed manner. Besides the perfections of the mineral forms, it has other higher and more perfect actions and operations. This vital or living vegetable form informs the organism and gives it life. In the vegetable this living principle is called the vegetable soul, in the animal it is the animal soul, in man it is the immortal soul, in the angel it is the pure spirit, in God it is himself,

the Infinite Spirit and eternal living Principle, to whose image and likeness all things are made. Hear St. Thomas again, regarding the object on which these living principles or souls exert their faculties: "The object of the power of souls may be considered in three ways. There is one soul, which exerts its power only on the body united to it, and this is the vegetable soul; for the vegetative principle acts only in the body united to it. But there is another kind of soul, which grasps a more universal object, that is, all visible bodies, and not alone the body united to it" (that is, the animal, which by the senses sees surrounding bodies). "But there is another kind of soul, which grasps a still more universal object, not only visible bodies, but universal being." That is the mind, which seizes the essence of things in the universal.

Thus the substantial form of the mineral exerts its attractions and repulsions only on bodies outside of itself. The vegetable form acts only on the organism united to it. The animal form or soul acts not only on the organism united to it, but by the five senses it enters into relation with all visible bodies. The human soul acts on the organism united to it as a vegetable, that is, the human body. But it likewise acts on all visible bodies by the five senses, while by the mind it grasps the still more universal, that is, the very essence or nature of each and every being of the mineral, vegetable, animal, and spiritual kingdoms. For by the mind we can even rise, in a certain way, not only to creatures, but also to the Supreme Universal God himself. Then the human soul has and possesses, by its very nature, all the perfections of the mineral forms, likewise the living principle of the animal soul, and in the mind the free-will of the perfections of the angel. Thus we are made to the image of the Creator, who has in himself, in an infinite degree, the perfections of all creation.

The various parts and materials of the mineral or non-living kingdom unite together and form one visible world we see around us. Although they are united by affinity and attraction, still they are separate. These attractions and repulsions are exerted on other materials and bodies outside themselves. Each particle and molecule of matter exists separately and alone, complete in its own nature. But the living being, although having many parts and vital actions, is one whole, having one living principle, one object, and one end. All its operations lead to two ends, the growth and perfection of its own organism, or the generation of individuals of the same species.

The vegetable, animal, or human soul in each organism is one vital principle, not many. Thus it gives the organism a unity. It partly communicates its nature to the crude mineral materials of which the living organism is composed, hence, as every spiritual being is by its very nature active, for every spirit necessarily moves, so each living being moves and acts. The more perfectly this movement remains within the spirit or vital principle, so much the more perfect will the spirit be in its nature. Hence in the mineral kingdom, the attraction and gravitation, repulsion and all actions of matter remain not within the attracting body, but pass without. The earth, which attracts a stone, exerts its force on a stone outside itself. The sun, which warms and lights the planets circling around it, exerts its power on the planets outside the sun itself. Thus it is all through the mineral kingdom. The actions of crude matter, and of minerals, remain not within themselves. Therefore, they do not live. Their actions come from their substantial forms, which make them what they are, minerals.

Let us see how this action takes place in living beings. When the animal moves, the movement remains within the organism, for it is exerted on the muscles of the living animal, and exerts all its force on these muscles, and entirely remains there within the organism. When I write, the movement remains within me. Only its effects pass without and leaves the marks or symbols of ideas on the paper. Life, then, is movement from within. It comes from an active principle, residing and remaining within the living being. Life, movement, then, requires two characteristics or qualities: First, that it is an action or force coming from a true source or principle, which gives it birth, because, if it comes not from within, but from without, the subject possessing it does not act but is acted upon. Secondly, it must come from a true acting principle which dwells within the active being.

Keeping in view these two qualities of life, that it is active or always in movement, and that this action or movement remains within the moving living thing, we will lay down three properties of living beings, the execution of the movement, the cause which determines the movement, and the end to which all movements are directed. By these three qualities of life we will see what living beings have the most perfect life.

Regarding the execution of the movement in plants, it comes from living principles which animate them. The

plant is the source of all vital action within itself. It sprouts, grows, nourishes itself, and reproduces its kind by generation. But it knows not the reason why it does this. Thus when animals or men sleep, only the vegetative life in them is in action. We know nothing in sleep. Breathing, the circulation of the blood, digestion, and all the acts of the vegetative powers continue working in us during our sleep and continue working in us, independent of our senses or of our free-will. The cause of these actions is beyond the control of our will. We cannot stop them or control them in deep sleep. Besides, when awake, the vegetative powers are more or less independent of us. Thus we cannot stop the beating of the heart, the works of digestion or nutrition, etc.

St. Thomas says: "There are some creatures formed, which move ignorant of the end given them by nature. They only do the work, but the end for which they work was given them by nature. These are plants which, according to the form given them by nature, move themselves." But it is not so in the animals, especially of the higher kinds, which have not only the vegetative powers, but also a living principle of a higher degree, having not only all the perfections of the plants in a higher and more perfect degree, but also sensation, and, therefore, they have a more perfect movement, and more perfect life, and they move because of the knowledge acquired by instinct and the five senses. This knowledge of the things around them is the cause of their movements; to obtain that which is good for them, to avoid that which is bad for them, they move themselves. Thus their life, in this respect, is higher and more perfect than the life of the vegetable. The vegetable moves itself, but knows not why; the end of that movement in them was determined by God. The animal has that, but more, for many of its movements are to obtain food, which it perceives by the senses, or to avoid dangers which it sees threatening it.

The operations of the living organism remain wholly within the living being, both in the plant and in the animal. The causes, therefore, which determined those vital movements in the plant, were determined or laid down for its nature by God, but in the animal they are determined by the animal, that is, by what the animal perceives by its senses. In this respect, then, animal life is above that of the plant. In man all his movements come from the living principle within him, which is his soul. All his actions or movements remain within himself. The reasons of his actions or why he acts

is determined by the knowledge he acquires. The animal does not propose the end of his movements, but man does. Then man's life is more perfect in this respect than that of any plant or animal. But man is not his final end. That is God. In the plant the movement remains within. In that vegetative action differs from and is more perfect than the mineral, where all actions are without the acting being. But in vegetative life, while the movement starts from the living principle, and remains within the living organism, its object is something without its living being. That is, it reaches out and grasps something useful to build up its tissues, and till it is digested and assimilated to the plant organism, it remains without the living plant. In the animal the food is taken within the body, and then digested and assimilated. In the animal the senses, especially the noblest, sight, grasp images furnished it by surrounding objects, and these images always remain within the senses. This relates to all sensations in the animal kingdom. But in man the movement of the mind, his highest faculty, has for its object the thought or idea which always remains within the mind and does not exist or pass without to be brought into the organism, as the materials of nutrition and of growth in the vegetable, as the objects which cause the sensations, and images of visible things in the animal kingdom. Therefore, in this respect, intellectual life is more perfect than either vegetable or animal life.

The same may be said regarding generation. In the beginning the being generated is a part of the generating parent. Thus the seed was once a part of the plant which produced it. But it was always outside the plant. The embryo of the animal was once a part of one or both parents. It remained for a time within the mother, but in due course of nature it was born, that is, separated from the mother. In this way animal is above vegetable life. But in intellectual life mental conception takes place, so that the thought is born of the mind. It always remains within the mind, and it never separates from the mind. In this respect, also, intellectual life is above and superior to either vegetable or animal life.

In the angel the acts of the mind, which is thought, whose object is truth, and the acts of the free-will, which is love, whose object is the good, remain within the mind and does not pass without. But the object of the mind, that is Truth, is God the Son, and, therefore, is without the mind. The object of their love in the will is the Good, which is

God the Holy Ghost, and, therefore, without and external to created minds. The motive why God brings forth these two acts, Truth in the mind, and Love in the free-will, is within Him, which is liberty, and the end of these acts is His own happiness. But the final end of all intellectual creatures is not themselves, but God. They were created to be happy with him, and they can never rest their happiness in their own being. All this is also true of men as well as of angels; for this reason free-will and mind of angels are like the reason, free-will, and mind of man. But in God alone is perfect, eternal, and True Life. He is Life. For while in creatures the vital movement differs from the living things which move in God, his life does not differ from his nature. For in the created intellect of man and of angel, the act of the mind differs from the mind, and the mind differs from the substance of the being which thinks. For the mind is a faculty of the soul which thinks Thus in created minds the act of the mind, and the faculty or mind which producesthe act, both differ from the essence or nature of the thinking creature.

In this, created minds are not perfect. But in God both the mind and the thought of his mind is the Son, who differs not from the Father himself, who is the same and Co-equal and Co-eternal with him, the Father, who is the same substance. The mind of God does not differ from himself. It is not a faculty by which he thinks. It is himself in action, in movement, in thought, for God is essentially one simple indivisible, One in nature and essence, although Three in Persons. St. Thomas says: "The power of God, which is the principle of his operations, is the essence itself of God, which cannot be true, neither in the soul nor in any creature. For neither in an angel nor in any creature is the operative power or force the same as its essence."

Therefore, in God alone we find that movement from within is whole and complete, and remains whole and complete within himself. Thus, in him alone is found life in its highest and most perfect way. "As God is his own being and his own intellect, thus he is his own life," says St. Thomas.

God being the infinite intellectual Being, we must conclude that he has, like all intellectual beings, a mind and free-will. And the acts of his mind and free-will constitute his life. He made all creatures to show forth his power, and to represent his own infinite perfections. The mind of God is also in the Son of God, the Second Person of the Holy Trinity, and the true will of God is also in the Holy Ghost, the Third Person of the Holy Trinity. His move-

ments or acts are the generation of the Son from his mind, and the procession of the Holy Spirit from his will. The mind of God generates Truth, which is the Son. The will of God gives procession to the Good, which is the Holy Ghost. But these two acts of the Almighty remain within himself. They do not pass without him. Therefore, these Three are One.

The cause which makes the plant act is not within it, but in God. The cause which makes the animal act is without it what it sees. The cause which makes the intellectual mind of man or angel act, is the truth and free-will within it. The cause which makes God act is himself. The end of the vegetable kingdom is to furnish food for the animal. Thus the plant takes the materials of the mineral kingdom, makes use of chemical action, light, heat, and the forces of nature to build up its organism. It seizes the different materials which will serve as the food of animals and of man. The animal kingdom was made for the food of man, as well as for his use and benefit. Man and angel were made to glorify God. Thus the end of creation here below was man, an intelligent creature. And man was made for God, but the end of God is himself.

Man and angels can propose for themselves certain ends, and can choose the means to attain those ends or objects, for they are free. But they are not free regarding happiness, or the final good. That is implanted stronger in them than instinct is in animals. That happiness is God, the source of all goodness and happiness, who is the infinite Good, that is, the Holy Spirit. Thus all tend to him, the Creator and Supreme End. Then in every way God has the most perfect life. In fact, he is life itself.

We have thus traced life in its acts, through the various ranks of creatures, and we have seen that life is only perfect in God, to whose image and likeness all things were made. Living beings are only so many mirrors, which reflect in a way, more or less feeble, the life eternal in God.

Having seen life in its operations, let us inquire what is life in its nature. There are four kinds of living creatures, vegetables, animals, men, and angels. In vegetables, life is slow and imperfect. In animals, it is more rapid and more perfect. In man, especially in the mind, it has the rapidity of lightning. In angels, it is still more rapid and perfect. But in God life is infinite, incomprehensible. Like all his other attributes, it is unsoundable to man.

Therefore, we find five living principles. One animates

the vegetable organism. It is wholly buried in matter. Another living principle animates the animal organism. It is wholly sunk in matter, but by sensation and the five senses it grasps the forms and appearances of material things surrounding it. These two kinds of living principles, called the vegetable and animal souls, being united to the organisms they animate, cannot exist without their organisms or the bodies they animate. They die with the destruction of the organism. The living principle in man animates his body and gives life and movement to his whole organism. That living principle, called the human soul, acts through the organs of the body, like the living principles of vegetables and of animals. But the human soul has two faculties, the mind and free-will, which are above the bodily organism. They are purely spiritual, and independent of the body. This is the pure spirit part of man. This can never die, like the plant and animal, for the human soul was made to live eternally with God.

The angel was created without a body. These pure spiritual substances are more complete than the human soul. They live a life entirely separate from matter. They are pure spirits and in this they represent better the infinitely pure, spiritual God.

Life, therefore, is a living, spiritual principle created by God to represent his own life. These living principles were made to the image and likeness, more or less imperfect, of the ever-living God.

The human soul, then, has all the perfections of the mineral form, of the living principle of the vegetable and of the animal soul. By these powers the human soul animates the body and performs, but in a higher way, all mineral, vegetable, and animal functions. By these it gives life to the body. But it is above the animal, for it has also the mind and free-will, which are independent of the body. In our present state, the pure spiritual mind draws its images from the imagination, which uses the nervous system in thought. Hence if the human organism is injured, especially in the nervous system, the instrument of the imagination is weakened or destroyed, and the mind and free will cannot act. In our present state, therefore, the mind and free-will depend on the organism. But the mind and free-will still remain complete and spiritual in themselves, although they cannot act when the body is injured or diseased.

In order to better understand the nature of life, we must go into further details relating to the nature of vegetable life. But that investigation will belong to the following chapter.

CHAPTER VII.

The Nature of Vegetable Life.

There is a tendency among scientific men of our times to claim that life, or the vital force, does not differ from the forces of nature, that the phenomena of living beings can be explained by the laws of mechanics, or that electricity can account for all vital activities in the universe. This comes from the false philosophy of Descartes, who taught that every living organism is like a machine set in motion. That false and dangerous opinion is taught and believed especially among and by physicians and physicists, who, studying the anatomy and functions of the material living body, its diseases and the laws and wonders of the material universe, they appear to easily forget the spiritual kingdom, which is the cause of all movement in the universe. From these false theories comes the errors of the materialists, who believe in nothing but matter, and deny the spiritual and invisible world around us. It is openly taught by the atheists, who deny God and the future life. It is propagated by the infidels, who deny religion, and by the theists, who admit God, but deny revelation.

But above all, we must mention the evolutionists, who believe that all living creatures developed themselves during a long course of natural selections from the crude mineral forces of nature, so that the minerals alone, and without God, rose up into the lowest forms of life. Thus, by the survival of the fittest, they advanced to the highest forms of animal and plant life, till at last man developed himself from the monkey and the ape. That theory, really, is only wild imagination, a supposition, and has no proof to stand on. Yet it appears to daily fascinate scientific men. Yet, although thousands of reasons are against it for one solid proof in its favor, still it is spreading more and more each day.

We do not write this because we are prejudiced or biased one way or the other, for or against evolution, or because we do not know science. For many years science has been our

special study. But we write with a love of truth and to rescue the human mind from the vast gulf of infidelity, into which science, falsely understood, is driving our brightest minds. How a man can study the laws of the universe, and say there is no Law-giver, the harmony of nature, and say there is no great Harmonizer, the order, which shines forth in everything, without an Ordainer, the beauty of creatures, without a Supreme Beauty behind them, the diversity of beings, without one supreme simple Being, the creatures of this world without a Creator, the movement of the material world, without a Mover, the living creatures without a supreme Life; how a sane man can study nature and not be raised up in mind and in soul to the God of nature, that seems to us to be the highest folly, and we can only say that, "The fool hath said in his heart, There is no God."

Men who write on science are absorbed in the study of nature. As a general thing they never study religion, the nature of life, of the soul, of God, or of the wonders of the supernatural. They are narrow minded in this, that they cannot grasp the supreme laws of the whole universe. They know only a part of nature, that which appears to the senses, that is, only the accidents and modes of matter, and hence they become in many cases materialists and unbelievers. Having spent long hours of study in the material world, they lose sight of spiritual things and of the world unseen; considering science and religion as divorced, they hastily jump to the conclusion that science and religion are opposed to each other, whereas they agree in the most startling manner, when both are properly understood and compared.

Yet only the small minds fall into this abyss of infidelity. The great scientists, with their penetrating minds, admit and teach that there is an unseen, mysterious, spiritual world around us, more wonderful than the material world we see. Sir Isaac Newton was a Christian and he always bowed at the name of God. The astronomers believe in the Creator. The great and good men of every age believed in God and worshipped him, the supreme Being. Let us see what some of the most learned men say about the nature and functions of vegetable life.

Berzelius, the learned chemist, says: "The essence of living bodies is not founded on their inorganic elements, but in some other principle, which arranges the organic elements belonging to all living bodies, and works to produce a particular result, determined and different for each species." He says that matter alone can never produce a

living creature. Adrien de Jussieu, the eminent botanist, says each plant has a living principle, which animates and builds and constructs its organism. Cuvier, the celebrated French naturalist, says: "Life in general supposes an organism. * * * Thus do we not see life in each organism and it was made to live therein? and all efforts of physicians cannot show us matter organizing itself, either of itself or by any exterior cause." Bichat says: "Organized bodies always act on themselves, even exerting on each other a continual action. Soon they die; have they not in them a principle of action? And that principle is their life."

The editor of Bichat's works says in a note: "We remark that Bichat's definition includes the word to resist, and in these to resist the efforts of external forces, which endeavor to destroy the living bodies. These words carry with them the idea of a force different from physico-chemical influences." But that force which commands and governs the forces of the mineral kingdom must be above and superior to what it governs and commands.

Milne Edwards, the great French physiologist of the University of Paris, agrees with us, for he says: "Living beings are not free from the action of the general forces of nature, but they are subject, at the same time, to the influences of life, which is also a force, and which belongs to them alone. Life it is which co-ordains the physical and chemical forces, and produces those phenomena, of which organized bodies offers us the spectacle."

Strauss Durcheim goes farther and calls that living force a soul. M. de Qualrefages complains that naturalists, being accustomed to work in their laboratories, absorbed in the study of chemistry and of physics, soon forget the phenomena of life, and try to explain vital action by chemical and mechanical action. Hence, they are very much exposed to become materialists and to deny the existence of the soul. Others still, as celebrated as scientists, say that in man the life of the body comes from the intellectual soul, that is, from a living principle, distinct and independent of the mineral kingdom. That really is the truth. We will not give any more testimonies from the celebrated scientists of every age, and from other countries, showing that all great minds admit that the principle of life in plants and animals differs from the forces of nature, although we could cite many of the greatest writers of this and of every age.

Combinations formed by natural forces belong to the domain of inorganic chemistry, while combinations formed

by living principles, either plants or animals, belong to organic chemistry. Hence, these two great divisions of this noble science. But with all the progress of modern times in science, no one can produce the elements of organic chemistry, without the aid of living beings. We can only make use of them when we find them in nature, for the arts, as we find them already brought together by the vital principles of plants or animals or living souls. We may one day make albumen, fibrine, cellulose, or protoplasm, but never will man be able to combine them into a living organism, or even into a dead organism. That only life can do. Now God acts in living organism, not directly, but indirectly, that is, through secondary causes. He does not build the living organism. He does a more wonderful thing: he created the living principle, or soul, which by its own power built up the living organism, and if man, with the experience of thousands of years, cannot make the simplest cell of a living being, what nonsense it is for some half-educated scientists to claim that crude brute matter of itself can develop into life. Evolution, then, is entirely false, if it says that life without God can be evolved from matter.

The various organisms of the vegetable and animal kingdoms are pretty well known to-day, and the ultimate materials of which they are composed are the same as those of the mineral kingdom. But under the influence of the vital or living principle, they unite in the most varied forms and produce the surprising, beautiful, and wonderful productions of the vegetable and animal kingdoms. Yet these combinations, as the science of organic chemistry tells us, unite according to mathematical formulas, which vary not. Here again are the foot-prints of the eternal Mathematician, God, who still rules the living as well as the non-living world. All the elements of the organic and of the inorganic world are not known to us, and each year adds to us new victories, as nature bends before the conquests of man, over the mighty secrets of God in nature.

By sythesis, that is, by the building up of one compound out of many simple elements, science has recently succeeded in forming a few materials of the vegetable and animal kingdoms, such as quinine and urea. But they cost too much to make them this way. But in this we do not imitate life nor do we find out its secrets. We cannot change these materials into cells or into bark, leaves, nor animal nerves and tissues. But even if we could, we would have

only a corpse, not a living organism, a machine, not a living thing moving itself. By chemistry, mechanics, hydraulics, and the sciences belonging to the mineral kingdom, we can imitate its phenomena, harness its powers and use the laws of nature for our purpose. But when we rise up to life, then we must stop, for we can never imitate the phenomena of life. That living, mysterious force, that vital principle which builds up the organism, that life which God created and which he spreads so bountifully throughout nature, that is beyond us, above the forces of nature, and is above, superior to, and independent of the capacities of the mineral kingdom.

The forces of the mineral kingdom are not destroyed, but are used by the living principle in the organism. The microscope shows us crystals in the sap of plants, and in the blood and humors of animal organisms. But these little crystals have not the same form and shape which they take when free from vital action, as in the mineral kingdom. They show that they are ruled by a force superior to that of simple crystallization. That is the vital force, the living soul which harnesses and controls the attractions and repulsions of the mineral, and uses it for its own purpose. The vital force is not in opposition to chemical or mineral force, but it uses the mineral activity and turns it to its own end, that is, the construction, the building of, and the preservation of the organism or of the species. The elementary forces of the mineral kingdom tend always to destroy the organism, and reduce it to its primitive elements. But the vital principle or soul opposes this as long as the plant or animal lives. When it dies, the vital principle of the plant or animal dies with the organism. The substantial forms of plants and animals are then annihilated, reduced to nothingness, from which God created them. The organism, then, has only a form called the cadaveric form.

The elementary forces of the mineral kingdom have now full sway and dissolution sets in. That is death. The living principles or souls of plants and of animals are annihilated, destroyed at their death. But the soul of man does not die, for there is a part, the mind, which is immortal, and lives forever. The soul, then, of the plant or animal is like a broken ray of life, telling us of the everlasting life of God, of which the ceaseless, endless, and immortal life of man and of angel is the most perfect figure and image, in this respect, that we find among creatures. Later we will give the reasons why the soul of man is immortal.

When the organism dies, the whole begins to dissolves. But that would give off gases and materials of a very disgusting nature. To prevent this, there is a world invisible to the eye, but revealed by the microscope, of animals and plants, which take hold of the dissolving materials, and eat the decaying substances and thus prevent the air and water from being polluted and poisoned. The germs of these little beings float in the air and water, till they find a suitable pasture, then they develop with amazing rapidity. They sometimes develop in the living organism, and give rise to various diseases, fevers, and troubles of man and of beast. Science has given them various names. Only lately have we begun to understand their nature and their habits.

Take a little hay or grass, and put it in water exposed for some weeks to the air. Then in, say a month, examine it under the microscope, and it will be found teeming with living organisms of diverse species, each individual swimming in full vigor. Although so small, they have, proportionately, more life and activity than our large animals. Each is independent and shows that a perfect, living, moving soul inhabits it, that the muscles which move the cilia with which it propels itself are exceeding small yet perfect. Later on in this work we will speak again of these microscopic animals and plants.

Plants, then, are the lowest kinds of living creatures. In them life is slow and obscure. They are in everlasting sleep. By its root the plant draws water from the soil, it pumps the sap up the stem to the leaves, where it is acted on by the air. It gives out oxygen, necessary for the animal, and takes in the carbonic acid gas breathed out by the animals. It also gives out a part of its water through the leaves. By the action of light it forms chlorophyl, which is the green matter of all vegetables. It throws out gums, resins, and materials, injurious to its nature, but useful for the arts. Certain buds, by better nutrition, develop into flowers, and propagate seeds apt to reproduce its kind.

But the operations of vegetative life may be reduced to three heads : the growth of the individual plant, the preservation of its being, and the preservation of its kind. St. Thomas says : "There are three powers of the vegetative part. For the vegetable, as was said, has for its object the organism vivified by the soul, for which three operations of the soul are necessary. One by which it acquires its being ; for this the generative power is ordained. The other is that power by which it arrives at its full size; for this the faculty of

growth is ordained." But there is another by which the body of the living organism is preserved in its regular size; for this nutritive power is ordained. Therefore, the plant has three chief powers, growth, nutrition, and generation.

In growth, nutrition, and reproduction, then, the plant exercises its acts. It has, therefore, these three faculties, by which it exercises these three kinds of acts, for all creatures exercise their actions by special faculties or powers, which are separate from the essence of the acting principle or living force. But in God, as he has no faculties separate from his essence, his acts are himself. He acts by his essence, or by his very Being, and not by any special faculty or powers. Thus his acts are the generation of the Son and the procession of the Holy Spirit. But these come not from any faculty or power of God, but from the very essence of the divine nature, and thus these three divine Persons partake of this divine nature. Therefore, these Three are One.

In treating of the growth, nutrition, and reproduction of vegetative life, we must remember that man's soul has all the properties and powers of the creatures below us. Therefore, we grow, nourish ourself, and reproduce our race, like the plants, but that takes place in us in a higher, more eminent, and more perfect degree. For in the scale of creation, man is higher than the plants. We will therefore treat of growth, nourishment, and generation in the following chapter

CHAPTER VIII.

The Growth of Plant, Animal and Man.

The moment the vital principle or soul begins to exist or live, the organism of plants, animals, and man begins to grow, provided everything favorable for its development is present. It may be only a single cell of protoplasm, but it immediately forms and builds beside it and adds to it other cells. It pushes out its invisible hands, grasps materials necessary for its growth and continually adds part after part to the organism, according to the shape, form, and size of its kind. This shows that the vital principle, or, as we call it, the soul in man was created whole and complete at the instant of generation. Otherwise it could not build such a wonderful thing as the human body or the organism. Many writers think that because they cannot see the vital principle or soul that it does not exist. But we cannot see a spirit or anything spiritual, because it is an invisible being. The vital principle or soul of plants and animals cannot exercise its functions without the aid of the organism, which it was created to animate and vivify. The vital principle of the plant or animal exerts its force only within the body of the plant or animal and by its faculties. These faculties or powers, which belong to the vital principle, cannot exercise their functions without the aid of a material organ.

Thus the power of seeing resides in the soul, yet the soul cannot see without an eye, for the eye is the material organ of vision. Therefore, before the eye is formed the soul cannot see, although it has radically in itself the power of vision. If the eye be destroyed vision is destroyed, but the human soul still possesses the power of vision, although it cannot exercise it or see. In the same way the vital principle or soul of man is created perfect, complete, and entire, with nothing wanting, for spiritual or reasonable beings are whole and complete in their nature, or nothing. For the pure spiritual soul has no parts, and therefore cannot be created or developed by parts, for to have parts belongs to matter. But those animal powers in man which require a material organ-

ism in order to exercise their faculties or acts, cannot do so till the organ is made. Thus no one can digest without a digestive organ, or see without an eye, or hear without an ear, and thus of all material organs which are animated by that part of the soul which belongs to the vegetative and animal powers of man. The human soul is therefore created whole and complete at the instant of conception. But many human acts cannot take place without the aid of certain organs of the body. The soul, then, before the body is made, cannot exert any act. Therefore, during the first period of our existence, we are in the deepest sleep, and know nothing till the soul has, by its own intrinsic force, built up the body we inhabit. The Church, with her usual penetrating wisdom, knows this, for she orders all children baptized, even before birth. In this she tacitly admits that the human soul is complete from the moment of conception.

The various powers or faculties of the human soul are contained, absorbed into, or are held suspended in the human mind before the organism, the body, is constructed, because the mind contains in a higher and more eminent way all the perfections of creatures below us, such as the vegetative and animal faculties which belong to the vegetable and animal kingdoms. The mind, therefore, in early childhood holds suspended these faculties which animate the body, till the body is developed and formed. In the same way after death, when the body is destroyed, these same faculties are again absorbed into the mind and remain there till the resurrection, when the body will be animated by the same faculties.

But the plant and animal have no mind or power superior to those faculties which animate the organism. Therefore, the vital principle of plants and of animals is not created at once and complete, like the human soul, but gradually, and according as the organism they vivify is built. For the living principles of vegetative and animal organisms cannot exist separate from the organism. They are made at the same time with the plant, developing, and growing, and decaying, and dying at the same time with the organism, for they have no mind or faculty which is above the organism, and which can live after it is destroyed.

The scholastic writers sometimes held that, according as the child developed, it first received a vegetative soul, then, as it advanced, this lower soul was destroyed, and then an animal soul took its place. When the child took the form of a human being, it received a human soul. But we are inclined to doubt all this, and to believe that the theory

given by us in the preceding pages is the only one agreeing with the discoveries of modern science. It is true that we are on the borders of human knowledge, beyond which our knowledge will never advance. For all is mystery regarding the way God creates the soul and living principles. Hence, here men divide into various opinions, when they are not sure of a thing.

The soul of the animal, then, like the plant, confines its power within the organism, or lives wholly within the body. But by the five senses it goes outside and beyond its body, and enters into relation with all visible bodies which surround it. The soul of man lives wholly within the body, like the living principle of the plant. It has also a skeleton, muscles, functions, and the five senses of the animal kingdom, by which we see the surrounding objects. But we have, besides, the mind by which we rise to the contemplation of being in general, and by penetrating the essence and causes of things, we rise to the Infinite Being, God, the ultimate and last cause of all.

Then the vital principle, or vegetable soul of plants, has the perfections of the substantial forms of the mineral kingdom, besides other special vegetative perfections above the mineral form. They live, and have the powers of growth, nutrition, and reproduction. The animal soul has all the perfections of the mineral, and of the plant, with a superiority all its own, which is sensation, a nervous system, the five senses with the imagination. The soul of man has all the perfections of the mineral, of the plant, of the animal, and besides, the mind and free-will, which belong to the angel and to God. The mind of man, as well as the angel, has, in an eminent degree, or in a spiritual way, the perfections of the mineral, of the vegetable, of the animal, and of man within itself, while God the Infinite Mind has within himself, in an immeasurable way, the beauties and the perfections of all creatures. In fact, creatures only reflect, as in a mirror, that which is infinite in God.

We begin from the lowest and rise to that which is higher. Thus the plant begins by a seed already animated by a living principle, which began the instant the embryo was animated by fructification. That vital principle, under favorable circumstances, begins to draw in the materials of the mineral kingdom. Making use of the light and heat of the sun, turning the chemical forces of nature to its use, bending the powers of the minerals to its object, the plant grows. It adds cell to cell. It reaches out its root, sends up its

stalk, and branches out its leaves. Drawing to itself that which is useful, and turning aside that which is hurtful, the plant grows day by day.

In the animal, from the moment of conception, the soul uses only its lower or vegetative powers. It lives a life at first only of the plant. Therefore, the young animal grows only, while its mode of nourishment is slow, and rather overshadowed by growth. Thus the animal lives first only a vegetative life, unconscious of everything around it. It takes some time before it can form and use any of its exterior senses. The animal soul has not at first all the complete powers belonging to it, for the animal soul wants a body, the organism, to execute these operations. Thus the animal soul cannot move itself without muscles, or feel without a nervous system. Therefore, for the first period of its life, it lives in undisturbed sleep, when only the vegetative functions of growth and nutrition are in operation. But the animal soul, being superior to the vegetative soul of the plant, in place of forming bark forms a covering of skin, not woody tissue, but flesh and muscle ; not those long round canals through which the sap of plants ascends from the ground, and which, when cut across and placed under the microscope, appear like honeycomb, but the animal soul builds up arteries and veins, through which its blood circulates. This circulation of the blood appears to begin the very instant the creature begins to grow. In the vegetable kingdom, the sap is the blood of plants, which at first sight seems to differ little from water.

In the animal kingdom the blood is of two kinds. It is white in cold-blooded animals, which are of a lower order, but red in the animals of the higher ranks. In it float flat globules or disks, each separate and distinct one from the other. The plant makes use of capillary attraction, by which fluids rise in small tubes, by the attraction of the sides of the minute tubes. But the vital principle of plants has a power above the capillary attraction of matter. For when a plant or tree is cut off at the butt, and a pipe fitted on the stump is filled with mercury, the ascending force of the sap will be found very great, and far above any capillary attraction or mineral force. The beginning of life, movement and of growth was investigated by Prof. Ageses, and the result is found in his works.

Other naturalists have also lately turned their attention to this interesting subject. Animal life, being above the life of plants, requires a more rapid circulation of the blood

than of sap in plants, and therefore the animal soul builds a pump, the heart, which forces the blood through the arteries, and it comes back again to the heart through the veins. The plant builds leaves by which the sap is vivified by the action of the air. For in the leaves oxygen is given out, and carbonic gas is taken in. The vital principle of the animal builds lungs, where the carbonic acid gas is given out and oxygen is taken into the system. Here we see the designs of the Creator. For these two kingdoms, the animal and vegetable, mutually purify the air for each other. In the lowest forms of plant life, the bark takes the place of the leaves and breathes, while in the lowest species of animal life, they breathe by the skin and they have no lungs. In man the skin as well as the lungs breathe.

The plant has no feeling. It is in a deep and continual sleep, that knows no waking. When the animal, or when a man sleeps, then only the vegetative powers are in action. Then we know nothing. Before birth the animal, and also man, is in a deep sleep ; only growth and nutrition then go on in us, unconsciously building up and repairing the organism. At death the inverse takes place. We lose first our mind, then the animal powers, as the five senses, and lastly all sensation, when only the vegetative powers act. Then we are unconscious, or in a state of coma. At last these also cease and we die. How often men become unconscious and revive. Yet they retain the soul with its full powers, although these powers, for various reasons, are not in action. In the same ways, at the moment of conception, the human soul is created full and complete. But the vegetative and animal functions and operations of the soul cannot take place without the aid of certain organs of the body. Therefore, the soul cannot act in all its fulness, till the soul, by growth, builds and forms it various organs.

Each living soul belongs to its own species. Thus no plant will become an animal. An acorn will never become a maple, but always an oak. No dog will turn into a cat, or produce a rat. It appears certain that under favorable conditions of selection and of cultivation, the species of plants and of animals can be improved. Thus the potato, the apple, the cow, the horse, and numerous species of plants and of animals, have been improved by man. We cannot wholly deny the accumulation of facts laid down by Darwin in his works. Thus evolution, in a certain way, and within certain limits, is possible and extremely probable. But, alas! for the weakness and vageries of the human mind, they exag-

gerate too much the effects of evolution, and, losing sight of the spiritual, they bury themselves in the material and evolutionize away the vast gulfs which separate the various kingdoms of nature, and which never can be bridged without a direct act of God.

Plants grow in two ways, from within and from without. The animal also, but in a more perfect way, grows both from within and without. The growth of creatures is entirely beyond their control. God determined it at the creation of the species. Thus, we cannot, but in a slight degree, change the growth of creatures. That is controlled by the powers of the soul which animates them. The soul builds the organism which it is to inhabit. Then, a fine soul will develop into a beautiful body, while a coarse human soul will make a course rough organism to agree with itself. Thus a fine beautiful body in man shows us a beautiful soul, and experience confirms our conclusion.

All through nature the male is the most beautiful. This you find among birds, horses, &c. It is the law of nature, for the male is the more perfect, while the female appears to be an undeveloped male. Yet in man God seems to have reversed this universal law of nature, and a woman is more beautiful than a man. Her form is rounded, while his is angular. Her skin is smooth, while his is rough. Her movements are full of grace, when his are abrupt. We see this especially in the virgin. She is far more religious and more pious than man. Why this ? God foresaw that from a woman his Son would one day take a body, a human nature like ours. And she, his mother, was to furnish the materials of that body. Therefore, he made woman of a higher type than that of the man. Here in nature we see a preparation for the wonders of the Incarnation of God's only begotten Son.

The living organism is composed of cells. Yet these are arranged in different ways and are of diverse nature, and size, and materials, according to the vital principle which animates the organism. The grass and seeds are hollow. They arrange the material according to the well-known mechanical principle that a hollow tube is the strongest way the same amount of material can be placed. The same is seen in the quills of birds and in their bones, which in those which are long on the wing are hollow and filled with hot air, which makes them lighter, for according to the laws of heat warm gases are lighter. The bones of animals and of men are hollow, filled with marrow. Do we not see

here the design of God, in thus accommodating matter, in the most remarkable way, to the laws of physics and of mechanics?

While growth is going on the young is building up the organism. Therefore they require numerous materials.

For that reason the young are oftener hungry, and food tastes sweeter to them. In the vegetable kingdom the plant takes in its nourishment from the mineral kingdom, and elaborates it into its own organism. Yet it can better use materials which once formed a living organism like itself, and therefore plants grow better on a rich soil, that is, on a soil composed mostly of dead organism. Some animals live on the vegetable alone, some on animals alone, while man lives on both vegetables and animals. But all at length go back to the vegetable kingdom for their food. That man lives on both animals and vegetables is shown in his teeth. For the animals, which live on vegetables alone, have the molar teeth, with which they grind their vegetable food. The animals which live on animal food alone have long slender teeth with which they catch and masticate their prey. We look in vain in them for the large molars of the vegetarian animals. Thus the cow, sheep, rabbit, &c., which live on vegetables, have their large grinders in the back of the mouth. In them and in the horse the canine teeth are absent and there is found room for the bit with which the horses, &c., are guided. In animals which capture their prey the canine teeth are long, so that they can hold the animal which they have seized for food.

Man, the king of nature, and uniting in him all the perfections of all animal and vegetable life, has the molars to grind vegetables, and the canine teeth to masticate animal flesh. He alone of all animals has a perfect set of teeth. In examining the teeth of animals, we see a most remarkable agreement between the structure of the teeth, their mode of life, and the food they eat. This shows the design and harmony of nature, ruled by an all-wise mind, who is God.

The materials of the organism are ruled by the soul animating the body. The soul, therefore, bends all the mineral forces to its own purpose. But in the teeth, which are outside the control of the soul, we find that the enamel covering them crystallizes, because there the controlling force of the soul does not extend as in the deep tissues and bones of the body.

The soul or vital principle of vegetables, animals, and of man builds and forms the organism without knowing what it is

doing. Being in unconscious sleep, knowing nothing, yet acting, arranging, building the organism in such a remarkable way, it uses the forces of nature and assimilates the materials at hand. We must say that this is wonderful. What or how are its acts determined ? God at its creation made it according to its race and kind, and gave it power to thus build the organism. He laid down the laws of its activity. This is instinct; it is the mind of the Creator showing his almighty power in the works of his creature. Growth taking place without our knowledge, the soul building up the organism, using means to its own end, yet being unconscious of the means or of the end, all this shows us that it is God who disposes the means and chooses the end.

Here, then, is design in creation, and the designer is the Creator, for the creature is wholly in a deep sleep, unconscious of its acts, and we must fall back on some designer, and who can it be but God, whose supreme intelligence marked out all before ? The human body was built during the many years of our growth, when we were entirely unconscious of it, and that the soul would unconsciously form that most wonderful and most surprising organism of the whole world, that is certainly astonishing. Each year the physicians and the physiologists discover new wonders in the structure of the body, and the phenomena of life, and many of these organs of the human body are named after the discoverer. Each vein, artery, nerve and organ is always found in the same place in the body, so that the doctor, at a post-mortem examination, or the surgeon, at an amputation, is always sure of finding the organs in the same place, and of the same nature in every case, when the knife cuts into the dead or living flesh. But while studying the wonder of the body, they sometimes unfortunately forget a greater wonder, the soul, which built and formed the body, and they sometimes become so senseless as to deny the very existence of that wonderful soul, which reared in beauty the body as a place in which it resided. This comes from the false philosophy of Descartes and of his disciples, and because we are carried away more by what we perceive by the senses than by the conclusions of reason.

Growth at first takes place by building the body from the materials furnished by the parent. This is the real end and object of the materials furnished to the fetus, which produces the fibres of the animal and man, for it lives for a time on the substances furnished by the mother. The animals are of two kinds: one directly receives from the

mother the materials for growth, the other kind receives indirectly, through the placenta, the nourishment from the mother's blood. The placenta is always found among the higher animals and in man. It is composed of numerous veins, belonging to the mother, and in which her blood circulates, and of veins belonging to the young or child. The veins in which the blood of the child circulates, ramify alongside those from the mother, and the nutrition from the latter's blood passes into the blood of the former and thus furnishes the nutriment from which the body is built and nourished. The child floats in a clear crystal fluid like water for a certain part of its early life, because it is too tender to touch anything else till its organs are formed and covered with skin. Because the vegetative and animal powers of the soul alone work in us before birth, we are not surprised that sometimes the child takes the form of a fish, or of an animal, for the human soul has all the perfections of the creatures below us. And while the child lives only a vegetable and animal life till it builds and completes the nervous system, we are not surprised that it displays many traits of the animal kingdom. This has led many naturalists to suppose, and conclude, rather rashly, that man descended from the animal. Besides, scientific scholars not being posted in the science of the soul, study only the body, and their education being one-sided and incomplete, they jump to rash conclusions which lead to infidelity.

Before birth the child has to remain within its mother, living on her substance, till after nine months these organs are built out of the materials furnished by her blood. At birth these organs are still weak, and it lives for a time on milk, which is closely related to, and made of blood. For the first years of its life after birth, the child lives the life of an animal, with the vegetative powers of growth in full sway, assimilating the materials received as food to the perfecting of its body. And when, towards six or seven years of age the nervous system is more or less complete, reason begins to dawn and then it uses the mind which belongs properly to man.

CHAPTER IX.

The Nutrition of Plant, Animal and Man.

When the organism grows to the regular size, shape, and form, determined by its species, it ceases to grow. Their growth then ceases, but nutrition continues. Every living organism is imperfect in this, that it is continually changing the materials of which it is composed. Particles which once formed a part of its structure are thrown out, and other particles are taken into the organism in their place. But this is not true with spiritual beings. Thus the vital principle of plants, the soul of animal and of man, the angel and God change not. They do not eat. The soul of man and the angel grow by truth and experience. That is called education. That truth first comes to us by our five senses. We easily forget it and must learn it again. That is a higher kind of nutrition. Truth, then, is, as it were, the food of the mind of man and of angel.

But God does not receive new truth, for he is the Eternal Truth. As he feeds the plant, animal, and man by food through the wonderful workings of the laws of nature, so he feeds the minds of men with truth revealed to us through nature or through revelation. He feeds the minds of angels with pure truth flowing in limpid streams from the Son, who is the Truth of the Father. As the material organisms of this world grow and nourish themselves with food, so the mind of man and the angel nourish themselves with truth and with knowledge coming forth from God. In the spiritual and religious world, the Christian soul is nourished with the holy body and blood of Christ in communion, and the mind of man and of angel is nourished with the pure truth, which is God, that is, his perfection, revealed to created minds. In this respect the material is an image of the spiritual, but although we are continually changing, although in seven years the entire body of man, and sooner or later the whole organism of every animal and plant, changes and is entirely built up again by new materials, yet the living principle remains the same, because it is the same soul and

ever remains the same. Thus we know that we are the same individual that we were years ago, although no part of the body is the same now as it was so long ago, for by nutrition we have formed and built up a new body. This is so because the soul does not change its substance like unto the body, but it remains precisely the same, because it is a spiritual substance, and spirits do not change, for they more perfectly represent the changeless God. Alone, amid the ceaseless changes and mutations of the world around us, the spiritual being, the soul in man, is an image of that Supreme Spirit, God, who ever remains alone in his changeless eternity.

The organism, being imperfect, wants nourishment to repair its losses. This nourishment is its food. By the roots, the plant draws up water and other earthly nutritive substances. That is called sap, or syrup. Being sucked up from the earth, the sap ascends the woody fibres, changing more and more as it passes through the numerous capillary ducts, till it arrives, at last, at the bark and leaves, when it is acted on by the air. There it takes in carbonic acid gas, which changes it into sap, whence it returns again towards the ground by the bark, and furnishes the materials for building woody tissue, and the various organs of the plant. It penetrates to each and every part of the vegetable organism, and furnishes each organ with its required materials. Then the living principle seizes these materials in the sap, and incorporates them into the organism, continually building here woody fibre, there bark, there leaves, there buds or flowers.

In the plant, growth and nourishment do not appear to differ much from each other, for the plant still continues to grow and increase during the life of the vegetable. In the animal, because their life is of a higher and more perfect degree than that of the plant, animal growth stops when the creature arrives at its full size, while nourishment still continues till death stops the action of the vital principle. Here the living principle of the organism makes use of capillarity, by which fluids, by the attraction of the walls of fine hollow tubes, ascend in the latter, contrary to the forces of gravitation and of crude matter. But no force of the mineral kingdom can account for the numerous and varied phenomena of the growth and nourishment of the organisms of the vegetable and animal kingdoms.

Hales found that when he cut a vine off near the ground, and applied to the stump a tube filled with mercury, that

the ascending force of the sap lifted a weight equal to a column of water 55 feet high. This evidently could not be caused alone by capillary attraction. When two fluids, one denser than the other, are separated by a membrane, the thinner passes into the thicker fluid. This is called endosmose. When the thick fluid flows into the thinner, it is called exosmose. This flow of liquids takes place with great power in many cases in the vegetable and mineral kingdoms. The vital principle or living soul makes use of this principle in every organism in growth and nourishment. But endosmose or exosmose cannot account for the building up of the organism, because the fluids of the body are often held separate in spite of and contrary to their phenomena, showing us the action of a force above and controlling the actions of crude mineral matter. It is true that the evaporation of the water by the bark and leaves of plants, and the sweating of animals, aids the circulation of the sap and blood, but they cannot account for the varied phases of life. Besides, the sap returns again towards the roots, after having passed through the leaves, and the blood returns again to the heart after having passed through the lungs and capillary veins of animals. The circulation of the sap in plants, and the movements of the blood in animals, and in the human body take place according to the most secret and hidden laws of the science of hydrostatics, which treats of the laws of the pressure and flow of fluids. Only lately have the laws of fluids moving in pipes, or standing, been studied, and the farther we penetrate and learn the laws and the nature of flowing fluids, the more we are astonished at the wisdom of the laws which govern the circulation of the blood, and of the other fluids in man and animals.

The pressure of the air at the sea-shore is about 14½ pounds to the square inch. The fluids of the body press about the same, so that the pressure from without and from within balance. We find that more or less air pressure injures the organism, and if very great it destroys the living being. This we learn by the experience of those who build the deep foundation of bridges, &c., under water, as well as from the testimony of divers. Here we see that God knew well the pressure of the air on the surface of the earth, and the density and pressure of the waters of the sea, and he accommodated the fluids of the living organism to agree with these. Here evidently is design.

No force pump ever made by man is equal to the heart. In fact, all other pumps in a feeble way only imitate the heart.

It is evident that the great Creator, who created the living principle in plants and animals, and the human soul in man, knew, in an immeasurable degree beyond the knowledge of man, the laws of moving fluids. He is the author of the laws of the mineral kingdom, and he made the laws of the circulation of sap and of blood in living organisms to agree in the most perfect way with his other laws he ordained, so that everywhere there is harmony and design, for it all comes from the Harmonizer and Designer, God.

To say nothing of the numberless valves in the arteries and veins of the human body, we wish to draw your attention to the structure of the arteries, which stretch like rubber pipes, only more perfectly, while the veins are more unyielding. The blood surges through the veins in waves sent by the beating of the heart, while it comes back in a gradual flow in the veins. Therefore, the latter are not so strong and yielding. The fluids within press outwards at the same rate as the air presses on us, so that when men ascend to great heights, where the pressure of the air is low, the blood oozes out of their body. Thus, we were made to bear such a pressure, and all this took place long before man discovered the pressure of the air. Does not all this show an all-wise Regulator, and who can it be? None other than the all-wise God.

By use the materials of the body become unfit to longer remain a part of the organism. From every organ, then, and bone, and muscle, and nerve, and even from each cell portions of unused materials are thrown off. These are emptied into the blood, by which they are carried to the skin, lungs, and kidneys, and these organs, like the scavengers of the body, pour out the waste and useless portions. Thus they purify the blood. As in a city there must be a system of sewerage, by which the waste materials are carried away, or they would breed pestilence and death, so the skin, lungs, and kidneys purify the whole organism, and if they would stop, the system would soon be poisoned and death would follow in a short time. What a wonder that God has thus provided for throwing off waste parts so well that the death-dealing and poisonous carbonic acid gas and urea are sent out without our knowledge and free-will.

We see an image of the circulation of the blood, and fluids of the organism in nature. By the heat of the sun, the water is raised from the earth and ocean. It condenses into clouds, falls as rain and snow, gathers together in brooks and streams, these unite in creeks and rivers, like the veins of blood in

the system, till at last the waters return again into the vast ocean. But while passing through these various stages, the waters nourish the hills, valleys, and regions through which they pass, and cover the face of nature with life and beauty.

The plant having its roots, like so many mouths, in the soil, pumps up the water from the earth, sends it through the pores of the wood to the leaves, where it receives carbonic acid from the air, and is changed into sap, the blood of the plant, and then descends again between the wood and bark, and leaves its solid portions arranged as woody fibres.

The animal, being a more perfect creature than the plant, has, at least among the nobler species, a mouth with which it receives its food. In most of the animals the mouth is furnished with teeth to grind the food, while in the birds the gizzard, with its stones, takes the place of the teeth and grinds the hard food with which they are nourished. Passing into the stomach, where the fluids are carried off, the gastric juice is poured over the food, and the digestion is carried on by the muscular action and juices of the stomach, till layer after layer is digested and passed into the intestines.

In the meantime the bile from the liver and the pancreatic juice from the pancreas, digest the fatty substances in the smaller intestines, where the villi suck it up, and thus it becomes in its turn also chyle. These villi, absorbing the digested food in the animals, remind us of the rootlets of plants absorbing the moisture from the soil. The villi pour their rich contents into the lacteal ducts, which unite at length in the thoracic duct, which passes upward through the chest and empties into a large vein just below the left collar-bone, where it is carried to the heart and lungs, and there it becomes blood.

Every living organism requires for its maintenance a circulating fluid penetrating into every organism and cell, bringing to each part its nourishment. This is the blood in the animal, the sap in the plant. In the latter, as the plant is next to the mineral, and has the lowest kind of life, the sap is colorless and appears like water. But it contains the proper materials for the life and growth and nourishment of the plant. In the lower species of animals, as in insects and among the bacteria, the radiata and such lower forms of animal life, it is mostly colorless, like the sap of plants. In reptiles and fishes it is often cold and colorless, while in the nobler animals and in man the blood is always warm and red. In the birds the blood circulates very rapidly and is about ten degrees warmer than in man. The blood is com-

posed of a colorless fluid called the plasma and the corpuscules. The red corpuscules are mostly flat double concave disks, red in color, and they give the blood its color.

Swimming in the blood are also found round colorless bodies called the white corpuscules, which appear to attack and destroy the deadly bacteria which cause disease and fevers.

The plant, being little removed from the mineral kingdom, uses the forces of nature, as capillary attraction, endosmose and exosmose, gravitation, the attraction of the walls of its tissues for fluids, &c., and turn all these forces to its own use. But the animal being higher than the plant, and having a more complicated and perfect living principle, wants a more complete and rapid nutrition. While the lower animals do not differ much from plants, in this respect, the higher animals have a central force pump, the heart, situated in the middle of the chest, which sends the blood into every part of the system. In man it is hardly larger than the fist, and with sleepless watchfulness it continually beats through life. The blood from the veins carries with it all the impurities of the body into the right auricle of the heart, and from the right side above, by the opening of a valve, it passes down into the right ventricle, which squeezes it into the lungs, where it gives out its carbonic acid gas by contact with the air. From thence it is forced back again to the heart and into the left auricle, then down to the left ventricle, which gives a powerful squeeze and forces it, with its life-giving oxygen, into every part of the organism.

This nutrition, or circulation of the blood, is carried on by two vessels, the arteries and the veins. The arteries contain the bright, pure, red blood, filled with the life-giving oxygen from the lungs. The veins are filled with the impure, dark, poisonous blood from the organism. The blood in the arteries flows in regular pulses, caused by the beating of the heart, while the venous blood flows back to the heart slowly and regularly. The arteries are, therefore, stronger, more elastic and more deeply buried in the body, so as to avoid injury. At various places in the blood-vessels are found valves of remarkable construction, which prevent the return of the blood, for that would quickly cause death.

The vital principle, or soul, being whole and complete in every part of the organism, takes the materials of the blood and with them builds up the various organs of the body. Thus no matter how they differ, as bone from muscle, eye from hand, brain from liver, &c., they are all

built out of one material, the blood. Thus, every organ, muscle, cell, and part of the whole body, are made of materials furnished by the blood. In each organism we find that they all tend, in the most surprising way, towards one object, the perfection of the whole. Nothing is made in vain. All is harmony. All work in unison. The symmetry and beauty of all is surprising. If we examine under the microscope the various parts of the organism, we find that they are inconceivably and surpassingly more perfect than the works of man. Thus, when magnified to a high degree, the brightest and most polished parts of a watch, the finest machinery man can make, they all appear scratched, harsh, rough, and irregular, while the walls of the smallest cells in every living organism are found exceedingly bright and polished. The point of the sting of the bee, or the end of a thistle, end in a point so fine, that it is hard to find the exact point with the highest powers of our best microscopes, while the point of our best needles look like blunt, rough crowbars.

Everywhere through nature the works of God infinitely surpass the works of man. Painting, sculpture, and the fine arts are only so many abortive and imperfect imitations of the works of God. His works are fine, not only on the outside, or on those parts seen by us, but within, and without, and everywhere, from the most remote extent of the shoreless ether, amid which the suns and planets swim in ceaseless revolutions, even to the hidden and invisible cells and organs of all living organisms.

The most surprising unity and variety is found in the body, thus showing that the soul acts in each organ, according as the system demands. Not only that, but all this takes place without our own will, as the vegetative functions are beyond our control. All this was determined beforehand by the God of nature, for the structure and the organism of animals and plants show an astonishing harmony, an adaptation of means to an end, a depth of mechanical, physical, and chemical knowledge which no one but the Creator could have known. All human science and art fall before the wonderful construction of the human body. All the mechanical and chemical sciences are there found within the human body in all their perfection, harmony, and beauty.

We may say that the art of man is but a faint reflection of the perfections of nature, while nature, in its turn, contains the types of the Eternal and reflects the perfections of God.

In passing through the hair-like vessels of the organism, called the capillaries, the blood gives up its nourishment to the tissues, and organs, and cells of the body. Then it must go back again, become enriched with the chyle, and then pass through the lungs, where the impurities are given out in the breath, and the oxygen of the air taken in. In the higher animals and in man, there are two lungs, one on each side of the chest. They are soft, elastic, sponge-like organs, and communicate with the air by the windpipe. In the lower animals, as earth-worms, no lungs are found. They breathe through the skin. In insects, the air passes through tubes. Man also partly breathes in the same way through the skin, and when the lungs are diseased, the skin becomes soft and tries to supply the defect. The air tubes in the lungs end in little air cells, each covered with a capillary net-work of blood vessels, through the walls of which the carbonic acid gas pass from the blood into the air to be breathed out, and the life-giving oxygen is taken into the blood, to be carried to every part of the system, and to aid in repairing and building up the parts wasted by use.

The leaves of plants take the place of the lungs in animals. But the oxygen breathed out by the plants is taken up by the animals, and the carbonic acid gas thrown out by the latter is taken into the system by the plants. Thus the vegetable and animal kingdom mutually purify the air for each other. This shows the deep design of the Creator, in having one balance the other. In fact, on every side we see surprising design, all calculated by an infinite wisdom. In this work we can only point out a few of the marks of the Creator, as shown in nature, leaving the reader to use his mind to find the countless other harmonious designs which space will not allow us to mention.

As the material is but an image of the spiritual, so we find that the birth, growth, and nutrition of the Christian soul, in this world, follows the same general laws as the visible living things around us.

We grow in goodness and in godliness, laying up our treasures in the other world, each day, if we use the means at our hand. We are born by baptism, we are nourished by communion, and we attain our full growth and development by the sacraments we receive in the Christian Church. Thus the Christian has faith, which is like another faculty given him at baptism. By this faith he believes the truth God has revealed, proposed by the Church, because he sees

that God cannot deceive nor lie, and that the Church was founded to propose these truths to all men. Founding his belief on a God who cannot deceive, and on a Church which cannot err, the Christian is as solid in his faith as the eternal hills. He sees all these by his faith. The unbeliever cannot see these, because he has not faith. He is like the man born blind, who cannot see the beauties of nature. Therefore, it is as useless to explain the beauty of color and of the earth to the man who never had eyes, as to the one without faith, for faith is the virtue by which we see revealed truths of God, as by the eye we see surrounding objects, and the unbeliever has not faith.

CHAPTER X.

The Generation of Beings.

In the preceding chapters we have shown that there is a regular order and gradation of beings, from the lowest mineral to the highest angel, and that all represent God and show forth his infinite perfections. We find the same design in the wonders of generation.

When we consider the activities of creatures we find that the mineral has three principal acts. It exists, it attracts, and it repels. The plant has six. It exists, attracts what is good food, repels what is bad for it, grows, nourishes itself, and reproduces or generates its kind. The animal has these six activities of the plant and the three of the animal, namely sensation, movement, and the five senses. But man has not only all the nine activities of the animal given above, but besides these he has the mind, by which he seeks the true, the will by which he seeks the good, and liberty by which he controls himself. The angel has only mind, will and liberty and not the twelve activities of man, for as we go higher in creation we approach nearer to God and to his simplicity, and there we find the heavenly spirits more simple than on earth, for they represent the simplicity of God and are therefore more simple in their actions than man.

The substantial forms or souls of plants and of animals are generated by virtue of the parents, for they come from them with their organism and they do not live after or survive the latter. But the human soul is created directly by God, and it survives the dissolution of the body, for it is immortal and can never die. In this it represents the immortal and ever-living God. Generation may be defined as the origin of a living being from a living principle, from which it proceeds and joined in the same nature. Generation, then, supposes a living principle, that is, a being, containing in itself the origin of another, or it is something acting on another so that it gives it being. Thus a parent is the living being or principle from whence the young comes forth. Or one truth, as an axiom, may be the principle from which we may

draw many conclusions. Generation supposes the procession of one living being from another living being. Therefore, generation in its proper sense is found only among beings endowed with life. The being generated must have the same nature as the generator, otherwise it will not be a true generation. Thus worms, plants, &c., which rise from decaying matters, are not generated by the dissolving organism, as they have not the same nature.

All beings are of the same nature with the being which generates them. Thus the young have always the same nature as their parents. But they are different individuals. Thus in the family the father, mother, and child are of the same nature. In that respect one is equal one to the other, for they are of the same human nature. But they are different in person or individuality. They are one in nature, but three in person. In this they represent God, who is One in nature, but Three in Person.

Let us see the first family, Adam made from none, generated from no one, represented God the Father not generated. Eve, who came forth from Adam, figured the Son coming forth from the Father in heaven, while the child, generated from both father and mother, represents the Holy Spirit proceeding from both Father and Son. Thus all through nature the generation of creatures is but a weak figure and representation of the generation, eternal and unceasing, of the Persons of the Trinity.

The highest act of God is the eternal and unceasing generation of the Persons of the Trinity. As the generation of creatures represents this Divine generation, so generation is the highest act of any creature. For that perfect health, and growth, and strength, are required.

The highest act of the plant is the generation of another plant or organism like itself. To generate, therefore, the highest and most perfect health and strength of the plant is required. To this end all plant life leads. Thus, when a plant is injured, it will make a desperate effort to produce its seeds. Besides, when the seeds are formed, they require so much nourishment that the rest of the plant is comparatively poor in nutritive matters.

In producing seeds, which are made to become new plants, the vegetable kingdom approaches near to the animal, for its living acts are then exerted on a new being outside of itself, on a new plant, the exact nature and copy of itself. Therefore, in this the vital principle acts not on its own substance, but on a new organism, the seed, and in this

it is like the animal, which by its five senses enters into relation with the world around it different and separate from itself.

As the animal contains all the perfections of the vegetable besides sensation, so the animal generates its race, but in a more perfect manner than the vegetable. In the lowest forms of vegetable and animal life, one creature gives rise to another. They alone generate another individual. The generated is exactly like the generator, a figure of the Father, who generates the Son, the exact nature, likeness and figure of the generating Father. Although the great conifers and dicotyledous trees last for many generations, yet at last they die. But God has given them that wonderful power of "reproducing themselves," by which the species is preserved although the individuals die. All living creatures on this earth generate their race, and they are impelled to that by the strongest instincts of their very being. In that they tell of the generation of the Persons of the Trinity, the highest act of God.

In plants and animals, no matter how varied and diverse may be their nature, structure, and forms, they are all generated by cells. The cell or cells breaks from the parent plant and forms a new creature, or two cells unite to form a new individual. The first is called asexual, the second sexual generation. These two ways unite or are found modified more or less in all plants and animals. The sexual cell in plants is called the spore, in animals it is called the stroma. The lower plants and animals have no sex, while the higher living creatures are always of the masculine or feminine genders. By a law of their nature the two unite and from that union springs another individual like themselves. That is the generation of a creature, an imperfect and earthly figure of the generation of the Holy Spirit.

The simplest kind of sexual generation in plants, called by scientists conjugation, takes place where two cells precisely alike in structure and in nature by their union give rise to a new individual. This is found especially in the algæ and in the fungi, as the lichens, mushrooms, &c. Where cells of different kinds and natures unite and generate, it is called fertilization; one is the father the other the mother cells. The protoplasm from the first enters the latter cell and at that instant the latter divides and subdivides into cells and thus grows till it forms the seed, or the new individual. In the most advanced types of fertilization, the contents of the male cells is called the pollen. According

to Strasburger, the substance of the pollen by osmose passes into the germinal vesicle or female cell, all at the same time being nourished by the parent plant. The red seaweeds are the best example we have of this mode of generation.

The lower kinds of living creatures being made of one or more cells, the cell or organism simply divides, and by that division it forms a new individual plant or animal. That is called budding. It may be seen in the yeast plant, in the protococcus and in other low forms of life. Thus it may be likened to budding, where a single bud, or particle, is detached from the parent and forms a new plant. The lichens generate by groups of cells, the germs bursting forth, flying with the wind and germinating in favorable places.

In sexual reproduction, the masculine or feminine cell is incapable of generating without the aid of the other, but by the union of both the new individual is formed. That is to show that from the Father and Son in heaven come forth the Holy Spirit, who proceeds from both. As the generation of the Trinity is the highest act of God, so the flower is the most beautiful production of the vegetable kingdom. Within the flower you will find the masculine and feminine forms. The stamen is of the masculine, and the petal is of the feminine genders. The stamens give rise to a fine dust, which is formed of little bodies, of various sizes and shapes. These, falling on and uniting with the petals, give to the latter a protoplasm, which it has not itself. At that moment begins the generation of a new plant. Many seeds, especially of the higher order, such as nuts, apples, &c., surround the germ of the new plant with materials useful for man and beast. We give as an example wheat, corn and fruits. We know, then, why a flower is so beautiful. It is there that the generation of a new being takes place, by the union of the pollen with the petals. A flower, then, is the most perfect image which the vegetable kingdom offers of the generation of the Trinity.

When we rise to the animal kingdom, we find that they also generate their kind. But the life of the animal is more perfect and more rapid than that of the vegetable. In the lower ranks of animal life, the two sexes, like in the plant, are on one individual. The largest and most developed animal with two sexes is the lobster. Therefore, the numerous shellfish and creatures living in the sea, which are fixed or slow in movement, are of both sexes, and generate alone their species.

The pollen of the vegetable kingdom under the microscope

is regular, beautiful, and varied, and each species of plant may be known from its pollen. Under the microscope they are found to be very beautiful. But when we study the animal kingdom, that which is the pollen in the vegetable is the stromata in the animal. Placed under the microscope they are found to be filled with life; moving, living forms, ever hurrying, moving from place to place in search of the feminine cell. They are of various sizes and shapes, each different in the different species of animals. They usually have a tail, and swim, and move like a tadpole, which develops into the frog. In the rat the body and tail are quite long, in man the tail is about $\frac{1}{125}$ of an inch in length. They are exceedingly numerous in all animals and without one, at least, generation is naturally impossible.

Every animal with a back bone, including man, comes from an egg. That is the feminine element of generation, while the masculine is the stroma. Each egg has on one side an opening called the germinal spot. When one of the stromas enters the egg at that time conception takes place. Then the egg, having received life, divides into cells, grows larger and develops into a new creature, like the parents and of the same nature as the latter. Some animals develop within the mother. In that case the egg is very small and the young is brought forth alive. This takes place especially in the higher animals and in man. In other cases the young develop outside the mother. Then, in order that the young may have sufficient nourishment, the egg is large and contains all the materials required for the growth of the young. Thus we see that the eggs of birds are quite large and very nutritious.

The young, before being developed, is called the embryo. The study of this part of natural science is called embryology. That of the turtle has been carefully investigated by Agassiz.

In the conception of Christ there was no masculine element. For his Mother Mary always remained a virgin. By and through the operation of the Holy Spirit he was conceived and became man. What takes place every day in the generation of creatures, in the natural order, in his conception and birth took place in the supernatural order, for he was to begin a new order in the supernatural salvation of mankind. Who will say that God, who gave all living creatures the power to reproduce their race, could not give Mary the power to conceive his Son? All is the work of the Creator. Over all this God presides as over all his works, for the generation of creatures takes place in such a way as to provide for the

perfection of the race. In all cases among the higher animals, and in mankind, the young live on and are nourished by the mother. But where they are born alive, and are not hatched from the egg outside the mother, as among birds, reptiles, fishes, &c., the young is too weak to provide for itself. In that case the mother is furnished with glands to secrete milk. Those having milk form the highest class of animals, and, therefore, they are called mammals, that is, having milk glands. The milk is manufactured from the blood of the mother. Her love for them is strong while they are young and weak, all telling us of the love of God for us, and of the wonderful way he provides for all his creatures.

In the sensations of the animal there is a species of generation, but sensation is not the production of an individual different from the living creature which feels. For sensation does not dwell outside, but within the creature which feels. In sight, which is the highest of the five senses, we see, because there is formed in the eye an image of the thing we see. But the image in the eye remains, and has its whole being in the eye, and through that image we see the external object. Thus it is in all the other senses. In the fancy or imagination we generate images of the material world, which we receive by the senses.

But when we rise to the mind of man and of angel, there we find a more perfect generation, that is, an intellectual image of the thing of which we think. Thus the simple and common people say "I conceive" such and such a thing. It is a mental conception, an intellectual conception, generation and birth of a thought which is the image of the thing of which we think. Thus the generation of creatures, of plants, animals and of man, is in the human mind in a higher and more perfect way. But to generate a vegetable or an animal, the pollen or stroma is required, which stands, as it were, half way between the parent and the young, because it is the generation of a material thing or organism, and therefore belongs to the lower forms of nature and imperfect. But in the generation of a thought in the mind, there is no medium between the thought generated and the mind which generates it, because in the mind all is spiritual and intellectual. In the generation of a plant, the new seed or new plant is entirely outside the parent, and breaks off before it begins to germinate. All this is because the plant belongs to the lowest and most imperfect rank of life. Among the animals, at least those of the highest

species, the young remain for a time within the parent mother, because they are of a higher grade of life than the plants, while in the mind, the thought remains forever within the intellect which generates it, because the intellectual life of man and of angel is higher and more perfect than the life of plant or animal.

Now let us rise up to the generation of God, of which creatures are only weak images. For there only is found perfect life, and, therefore, perfect generation. Man was made to the image and likeness of God. We will begin, then, with man, for the generation of creatures below man, and the generating of thought, but imperfectly typify the generation of the Trinity. The mind is the noblest power of man. Let us then study generation of thought in the human mind.

When you think there is generated in your mind a spiritual image of the thing of which you think; as when you see there is formed in your eye an image of the object you are looking at. That thought is called an idea or image. In the mind the more perfect the image, the brighter and more perfect will be the thought. Thus every intellectual being, both man, angel and God, thinks. When God thinks of himself there is generated in him an Image of himself. That Image represents him exactly as he is, Eternal, Almighty, Self-existing, and with all the attributes and perfections of God, otherwise it would not be a perfect Image of himself and represent him as he is. As the thought in our mind does not differ from the mind, but is rather a modification of the mind, as it does not pass without, but always remains within our mind, not separated from the substance of the mind, so the Thought of God, which is his Image, does not differ from himself. It is God. The Image in the mind of God is the Son of God. As in God there can be no imperfection, so the Image, that is, the Son, generated from the mind of God, must be as perfect as he is, otherwise there would be an imperfection in God. Therefore, the Image, the Son, must be Eternal, Almighty, Everlasting, &c., like unto the Father who generates him. Therefore, the Son, the Image, is God. This generation took place in eternity, is taking place now, and always will. For "In the beginning was the Word and the Word was with God and the Word was God." The Father and Son, then, are One in nature, as the mind and the thought in man is one, as the individuals of the animal and vegetable kingdoms and man are all of the same nature or species with the young they generate.

But as individuals differ one from another, although of the same kind, nature, or species, and as the individual in reasonable beings is called a person, thus God the Father is a Person different from the Son and the latter is a Person different from the Father.

In the lower ranks of vegetable and animal life, by a blind instinct planted in them by the Creator, the masculine and feminine cells unite by various processes, each according to their own laws given them by God. Thus they reproduce their race. The bees and insects, in seeking honey, help to fertilize the flowers. In the animals the father and mother love each other and by a blind impulse of their nature, and by laws behind which is God, they generate their young. In man the husband and wife are animated by a fondness and a deep love for one another and the product of that love is the child, generated from both. In this they represent the love of Father for the Son in heaven. That mutual love of Father and of the Son is the Holy Ghost, who proceeds from both by love. This love, then, of God is himself, for "God is love," and all love in creatures is but an image of the eternal Love of God, who is the Holy Ghost. God loves his image. All creatures are made to his image and likeness. For that reason God loves his creatures, for he sees in them the image of his only begotten Son. The most perfect image of the Son of God in this world is man. Therefore, God loves us and ceaselessly loves us, and loves more, the more we resemble his divine Son.

Animals of different natures will not generate. By instinct they know that unless they are of the same nature they will not typify the generation of the Persons of God, having the same divine nature. Thus a dog and cat, nor man and animals, will not generate, for they are not of the same species. It follows in a stronger way that an animal and a plant will not generate. Therefore, there is an unsurmountable obstacle to the theory of evolution. For we find plants and animals do not change their species but in a slight degree and do not rise above their nature, as evolutionists think.

Then the Father, Son, and Holy Spirit are one; that is, they have one divine nature, one divine substance. But they are Three in Person. Therefore, considered in respect to their nature, they are One God, but regarding their personality they are three Persons.

The vegetative powers are in everlasting sleep, and they act blindly and according to the laws laid down by God.

For that reason the vegetable powers of the soul, as digestion, growth, nutrition, generation, &c., are more or less beyond the control of the free-will in man.

The parents love their young. Man and wife love their child, and that blindly, because love in animals is instinct, that is, the impulse of the Divinity, pushing all creatures onward towards the ends he destined for them. The weaker the young, the more the parents love them, because then the more they want the care of the parents. Love makes all things light and easy. So the husband and wife love each other, so that the mutual duties of one towards the other may be light and easy. We love the thoughts of our own mind, and it is hard to make people give up their own ideas, or the children of their minds. Thus God the Father, looking on his Son, the only Begotten of his eternal mind, the Father loves him. Thus the child loves its parent, and if the thought in our mind was a complete individual like ourselves, it would love us, who bring it forth. So the Son in heaven loves the Father. We have, therefore, in God something different from either Father or Son. It is a new procession. It is Love coming forth from the Father, and Love coming forth from the Son. But in God all things must be perfect, eternal, almighty, &c. So this Love must be like the other Two. This Love is the Holy Spirit, who proceeds both from the Father and from the Son. The Holy Spirit, therefore, is God. But when we love another, that love does not separate from our soul. It remains within us. It cannot be separated from the soul. And thus, this Love of the Father for his Son, and this Love of the Son for his Father—this mutual Love of one for the other—does not in nature differ from both Father and Son. The Holy Spirit is one in nature, and one in spiritual substance with the other two Persons of the Trinity. Thus they are one in essence, in nature, and in divine substance, but Three in Person.

The idea or mental image in the mind of man, or the thought which is the foundation of every language, and which every spoken language only expresses, is called the mental word. In man and angel, it is an image of the thing we think of, but not a person whole and complete, as in God, in whom it is the Son. This is well expressed by St. Thomas: "It is evident that in the Divinity the Word is the Image of him from whom he proceeds, and he is coeternal with him from whom he proceeds, as he was not once capable of being formed, but always really existed, and he is

equal to the Father, and he is a perfect Image and the expression of the whole being of the Father, and he is co-essential and consubstantial with the Father as he exists in his nature. It is certain, also, that in anything having the same nature, and made to the image and nature of that from which it proceeds is called a son, and this takes place in the Word, who in God is called the Son and his production is called his generation." Again he says: "As in our mind, understanding itself, there is found a certain word proceeding from it, from which it comes forth and bearing its likeness, thus in the Divinity is found the Word having the likeness of him from whom it proceeds. But this procession in two ways is superior to the procession of the thought in us. First in this that our thought or word differs from the essence of our mind, as was said before, but the divine intellect, in which actually alone perfect reason is found, cannot receive any mental thought which is not its essence. Hence, the Word is one in essence with him, (the Father) and again the act of his mind is his divine nature." Thus the Father and Son are one in nature, but differ in Personality.

The vegetable kingdom has no feeling. It is in everlasting sleep and therefore knows nothing of pleasure or of pain. In generating its kind, therefore, the plant is not attracted to that act as in the animal kingdom. It shows the perfection of the act by the beauty of the flower. But in the animal, which approaches nearer to liberty and free-will, a blind impulse and attraction is given them, by the God of nature, although they know not the reason or the object. Yet all this was determined beforehand by God. In man and angel it is a pleasure to think, and the sweetest intellectual act is to bring forth truth, to know that we are right. Truth is the image of the Son of God. Therefore, extreme joy and pleasure is attached to that which is an image of the eternal generation of the Trinity. But when we follow this up to God, we find that in the generation of the Son and in the procession of the Holy Ghost there is an eternal, an unspeakable pleasure. That is the eternal, immeasurable happiness of God, and in generating the Persons of the Trinity. All joy and happiness of creatures is but an image of God's happiness, and of the joy he had in the splendor of the skies before the world was.

Thus far we have traced the chief characteristics of the vegetable world, and found that generation is the highest power of the plant, and by which it approaches nearest to the animal. But we must now consider the animal kingdom.

The Animal Kingdom.

CHAPTER XI.

How Animals Differ from Plants.

In the preceding chapters we traced the chief peculiarities of the minerals and of the plants, and we found that the perfection of each creature is eternal in God. We now come to consider the animal. We will first see how the animal differs from the mineral and from the vegetable.

Let us not forget that all the perfections of creatures below us are found in a higher and more eminent degree in man, and that while we speak of these perfections and beauties in other creatures, we do so in order to explain better what man is, and to show forth the everlasting, eternal, and unspeakable attributes of God, of which all creatures here below sings to him a ceaseless song of praise and glory.

The substantial form of the mineral, the source of all activity, is found in a higher and more perfect degree in the plant, and the perfections of the mineral and vegetable forms are found in a still higher degree in the animal. Besides this, the growth, nutrition, and generation of plants take place in the animal, while again, all these are in a more eminent degree in the mind and free-will of man, his reasonable faculties, which belong to the angel. Then all perfections of creatures unite in man, so that he is the abridgment and sum total of creation.

Thus St. Thomas expresses it: "The difference between souls or principles of life arises from the way their vital operations surpass the operations of the mineral kingdom. For the whole organism is subject to the vital principle which uses it as an instrument. Now, there is one

vital operation of the soul which surpasses the corporal, and which has no need of any corporal organ. Such are the operations of the reasonable soul. There is another operation of the soul below this, which takes place with the aid of corporal organs, but not by any corporal quality, and such are the operations of the sensitive soul (that is the animal soul). But, although heat, and cold, and humidity and other physical qualities are required for the operations of the senses, nevertheless, sensation, feeling, &c., do not take place by these physical qualities, but they are required, in order that the organism may be well disposed to receive such sensations. The lowest vital operation is that which takes place by corporal organs and by corporal qualities; nevertheless, it is above the material qualities, because the acts of the latter come from without, while the former come from an interior principle, for this principle is common to all vital actions, for every organism in some way moves itself. Such are the operations of the vegetative principle, because digestion and the other vegetative functions take place by chemical action as an instrument," &c.

The penetrating genius of Aquinas, six hundred years ago, saw clearly what modern science confirms, that living organisms are divided into three great classes, the vegetative, the animal, and man, the reasonable being. He shows clearly what distinguishes the living from the non-living, that is, the power of moving itself. The minerals act on other minerals outside themselves, the vegetable uses the physical and chemical forces of nature, to grow and to build its own organism, to sustain its life and to propagate its species. The animal uses all these and besides has sensation and the five senses, by which it perceives surrounding bodies. The vital principle of plants exerts its operations only on and in the organism, while by the five senses the animal goes out, takes in and enters into relation with all surrounding bodies which it perceives by the senses. Man has all these powers of beings below him, and besides, by the mind, which is above the material body, he takes in all beings, visible and invisible, truth, beauty, goodness, God. The mind and free-will, then, elevates man above the animal, and unites him with the pure spirit world of angels, at whose head is God the Creator, having in him eternal the types and perfections of all creatures, and to whose image and likeness man was made.

The fundamental chemical constitution of plants are carbon, oxygen, and hydrogen. In the animal we find

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nitrogen added to these three minerals. This is not strictly the case, for there is no sudden gulf found in nature. Therefore, we find abundant traces of nitrogen in the fungi, as the mushroom and such parasitic plants. In the lowest forms of plant and animal life, it is impossible to draw the line and say which is an animal, which a plant, because one does not depend on the other, for plants can live without animals, and the latter without the former. Thus many animals, especially those which live in the sea, look and act like plants, while some vegetables, like the sensitive plants, withdraw their leaves at the touch of the hand. We may also say that starch is the great nutritive principle of plant life, while albumen, like the white of an egg, is the nutritive element of animals. While plants act according to the strict laws of nature, always the same, in the same conditions, animals, on the contrary, are endowed with sensation or feeling, and have more or less control over their actions. Plants must have light in order to accumulate carbon and other materials into their tissues, while this light is not absolutely required in animals for their growth.

With regard to size, the animal kingdom offers us a far greater range than that of the vegetables. The animal kingdom gives us, on one hand, the great whale, sometimes a hundred feet long, and weighing as many tons, and on the other, the microscopic animals of which 30,000 can inhabit a single drop of water, while the plants show us only the great trees of California, the sequoia, 90 feet in circumference, and 500 feet high, and on the other extreme the yeast plant, which can be seen with only the best microscopes.

The number of primary elements in the mineral kingdom, so far discovered, is only about 70. They may be considered as so many species of metals. But there are about 250,000 species of plants known to science, while there are certainly more than 300,000 species of animals. Thus the number of species increase as we ascend the scale of living creatures, while the species of angels are almost countless to man, for each angel is a distinct species in itself.

The vegetables and lower animals, being more exposed to perish, for they supply food to the nobler animals and to us, for this reason they increase far more rapidly than the animals. This shows the wise provision of God, for without this, the lower species of plants and animals would soon become extinct. Man and the mammalial animals, bring forth from one to eight at a single birth, while the codfish produces ten millions of eggs at a single hatch.

The same wise provision of God is seen in the habits of animals.

They eat that which is good for them, and reject that which is bad or poisonous. They often show a surprising knowledge of medicinal plants. Some drink water, others rarely or never take water. The more active they are, the more food and water they want. Thus, birds are almost always eating, except when asleep, while the reptiles, as the snake, the turtle, &c., may pass months without eating, especially when they sleep during winter.

In the animal organism, the warmer the blood, the stronger they are in proportion to size, because it is evident that, as in the steam-engine, the animal heat of the body is changed into muscular movement. Thus birds, which are about ten degrees warmer than man, are much stronger than the latter in proportion to size. But certain insects, as the ant, surpass all other animals in powers of strength and endurance.

The vegetable kingdom lives on the mineral kingdom, while the animal lives on the vegetable. Thus there is a regular order established in nature. Man, being both a mineral, a vegetable and an animal, takes in mineral, vegetable and animal food.

The animals, then, have the perfections of the mineral and of the vegetable kingdoms. But in them these qualities or powers are more perfect and more developed. The variety and numbers and peculiarities of animals are almost infinite, whether we study their structure, or their modes of living. Whether we consider the microscopic bacteria, which eat and destroy all decaying animal and vegetable bodies, the shell-fish, which live in the seas, the fishes which people the waters of the earth, the reptiles, which bask on sunny banks, the varied animals which sport in the waters, the birds, which fly in the air, the quadrupeds living on the land, even to the monkey and the ape, living in the tropics, they show the most wonderful structure, they are perfect in their kind, all show forth the eternal harmonies of nature's God. Wherever we turn in nature, we see deep design, remarkable harmony, and means adapted to the end. This could only be established by Infinite Wisdom. Man, having the perfections of the animal, and a body the most wonderful in structure, belongs to the highest class of animals, the mammals. The structure of his body is given in works on anatomy, which medical men learn. While the study of the functions of life gives rise to the

science of physiology, the curing of diseases is called the science of medicine. Sometimes physicians, absorbed in the study of the physical part of man, his body, forget the soul, and by a strange freak they sometimes become materialists and infidels, while they have a most wonderful structure, the human body, before their eyes, which tells in eloquent words the wonders of the Creator and of the existence of the soul which built up the body as a house and a place of residence.

An animal is a being which, besides the vegetative powers, has also sensation and movement. St. Thomas says: "The animal is known from the non-animal by sense and movement." Life is movement from within. The plant lives because it moves itself. So the animal lives because it moves itself. But as the animal soul is more perfect than the vital principle of the vegetable we naturally expect to find in it a more perfect movement. This we find to be the case. For while the plant moves in growing, nourishing itself and in reproducing its kind, all this is determined beforehand by the God of nature, who laid down for it the laws of its life and movements. It is in everlasting sleep and knows nothing of its acts. But the animal has not only this perfection, but it moves itself by virtue of the knowledge it gets by the senses. By the senses the animal seeks that which is good for it, and shuns that which is injurious. Then the plant life is exerted only on the organism, while by the senses the animal exerts its life on all surrounding bodies which it perceives. The plant acts always about the same—follows blindly the laws of its nature, while the animal actions vary in almost an indefinite manner. Then the radical difference between the plant and the animal is sensation.

The essential difference, therefore, between plants and animals is that the latter are endowed with sensation and all that sense and movement implies. The five senses follow sensation or rather sensation means one or all of the five senses. In the lower animals, those which are hitched to the earth or the soil on which they live, in water or in the air, these have but little need of sensation and therefore they have only the sense of touch. By contracting and dilating they obtain their food. Their life movements are few and circumscribed, within narrow limits. They are little higher than the plants, which they resemble in many respects. Thus for a long time it was disputed among naturalists, whether sponges, corals, &c., were plants or animals.

But in the higher animals, as in the horse, dog and other mammalians, we find the five senses perfectly developed, for they seek that which is good and avoid that which is bad for them. To do this they must move the whole organism from place to place. Then movement, which is the essential characteristic of life, is slow and torpid in plants, but rapid, complicated and quick in animals. For example, how rapid is the flight of birds, or the movements of insects. Thus animals have a more perfect life than plants, because their movements are more perfect and rapid. But nothing is quicker than the movements of intellectual life in the minds of man, angel and God. Thus St. Thomas lays down three kinds of life, vegetative, animal and the intellectual life. "There are some living things in which the vegetative powers alone are found, such as plants. There are others in which, with the vegetative, is found sensation, but they do not move from place to place; these are the immovable animals, as many marine animals. But there are others which, with all these, have the power of moving from place to place, as the nobler animals, which require many diverse elements to sustain life. And therefore they require movement, that they may seek those things at a distance which they want in order to live. There are other living beings in which, to all these powers, there is also added intelligence, namely, men."

Therefore, by sensation animals differ from plants. Thus St. Thomas says: "That is called an animal which has a sensitive nature." "The reason that it is an animal, is because it is a sensitive being, by which an animal differs from a being, not an animal. The animal occupies the lowest degree of beings which know." That is, by the five senses the animal knows surrounding objects and they are the lowest creatures which acquire knowledge. They have instinct and appetites, which, like the plant, guides them in seeking food, propagating their race and avoiding whatever would hurt them. But this instinct, written in their very nature, was given them by the God of nature, for they cannot rise above the five senses, which only takes in surrounding material objects, and by no way can they judge of the means to attain these ends. God beforehand determined their nature and their end and gave them instinct by which they adapt themselves and choose these means to their end. We have only to call your attention to the remarkable foresight shown by animals in building their nests, of bees rearing their six-sided combs, which the best geometrician could make no better in order to save material. What foresight and instinct insects show

in planning and arranging for their young while they will for hours work to get through a pane of gass, because they cannot reason that it is solid, as they see the light and objects through it. So we might go on and fill a book, showing a wonder ful adaptation of means to an end shown by animals in order to preserve the individual or the race, while it is impossible for them to change. Nor can they be taught anything new, except within a very narrow circle, and that can be done only among the higher animals. All this goes to show that the mind which laid down the laws of life for these various animals was a mind, beyond all conception, infinitely wise. That mind was God.

We see animals show the most surprising wisdom and foresight in seeking and getting their food. They are guided in this by instinct. Thus animals which live on vegetables cannot be made to eat animal food, while those which live on flesh will not eat vegetables. When an animal is poisoned or injured, it will often seek an herb to counteract the effects of the poison. Before rain some animals show that they know it is coming. The flight of birds tells us of the near approach of spring or winter. Some which require salt, seek and eat it with avidity, while to others it is like poison and they shun it. By observing animals man has learned many secrets from nature. The young of certain animals can swim without ever having learned the art, while a man will drown if he has not learned how to swim. Young ducks and water fowl take naturally to the water. Thus a thousand cases might be cited showing that animals are endowed with instinct, which is founded in their very nature, and by which they provide for themselves, or their race. In this they show a knowledge far superior to man, while in other things they are very stupid and cannot go outside the limits of their instinctive impulse. Who could give them that but God, for when man undertakes a new work, he only imitates in his own feeble way the wonders of nature.

Therefore, the Infinite Wisdom of the Creator shines forth in the lives and instincts of animals. As the plant blindly and fatally carries out the end proposed by the Creator, so the animal does the same in its vegetative functions of growth, nutrition and reproduction. But the animal, besides this, acts from knowledge acquired by the senses, and in this it dimly foreshadows the liberty and free-will of reasonable beings of which we will speak farther on in this work.

Every creature acts because everything created represents in its own way God, who is the Eternal Act. When the

animal moves we may, in analyzing that act, divide it into three things, the movement itself, that which determined the movement, and the end towards which that movement tends. Plants have no knowledge, and therefore they do not propose the end of their actions, their life, or their existence. They grow, act, and complete their lives according to the constitution and laws given them by the Creator. But the animal moves not only as the plant, by instinct and by nature, but also because of the knowledge acquired by the senses. Thus the dog chases the rat it sees, for the sight of the rat causes the dog to run. But no animal proposes the end of its movements. The dog does not know why the rat should be killed. This only belongs to reasonable beings. Thus man proposes the end of his acts, and the means to attain that end. Therefore, in these three respects only reasonable beings are perfect, that is, regarding the movement, the motive and the end. But with regard to their final end, man and angels are imperfect, for no man himself, or angel itself, is his final end. That is God. For God, all reasonable creatures were made. While God alone is his own end. He is the Everlasting Act, Eternal Motive, Final End of himself and of all things.

"As those creatures which move themselves, and are not moved by others are said to live, the more perfect this movement is found in them, the more perfect is their life. In those which move and are moved these things are found. For first the movement is to attain some end. One chiefly moves because its vital principle acts, and again it uses an instrument to move. * * * Certain creatures we find move themselves, having no regard to the motive or the end, but only produce the act, but the motive and the end of their movements are determined by nature. These are the plants, which act according to the laws and the form given them by nature. * * * * There are others which do not only this, but move themselves, not only completing the execution of the act, but also on account of the form, (or reason of the act) and such are the animals, in which the principle or cause of the movement comes not from nature, but from the senses. Hence, the more perfect their senses, the more perfect their movements. For those which have only feeling move themselves by simple dilation and contraction, as the oyster and those animals a little above the plant. Those which have more perfect sensation or knowledge, not only of knowing things by touching them, but also things at a distance, move from place to place. But although these ani-

mals by their senses receive the form, sensation, or principle, which determines their movements, they do not propose the end of their movements, for that is determined by their nature, because by instinct they act and move towards their end. But above such animals the beings who move themselves to attain an end, they propose that end themselves. But this takes place only in man and angels, by reason and the mind to which it belongs to propose an end, and the means to obtain that end, and to ordain one to the other." Thus the great St. Aquinas speaks.

In order that the reader may understand better the animal kingdom, we will now give the different kinds and species into which animals are divided.

CHAPTER II.

The Different Kinds and Species of Animals.

The great naturalists, such as Cuvier, Agassiz, Milne-Edwards and others, divide the animal kingdom into five grand divisions—the animalcules, as the microscopic animals; the radiates, as the star-fish; the mollusks, as the snail; the articulates, as the insects, and the vertebrates, as the dog. These again are in their turn divided into different classes. Thus, the radiates divide into the polypi, the acalephæ and the echinoderms. The mollusks give rise to the acephals, the gasteropods and the cephalopods. The articulates separate into worms, crustacea, and insects. The vertebrates, that is, having a back-bone, are classified into the myzontes, the fishes, the ganoids, the selacians, the amphibians, the reptiles, the birds and the mammalians. Man belongs to the latter branch of animals, that is, he belongs to that class of animals which nourish their young with milk. The lowest and smallest kinds of animals are the animalcules. They can be found and studied only by the microscope. They are called infusoria, because they are found abundantly in all decaying vegetable and animal matters. They vary from $\frac{1}{10\overline{0}}$ of an inch in length, just at the limit of the unaided eye, to a minuteness which tasks the most powerful microscope. They do not spring from spontaneous generation, as was once supposed, for the recent researches of Tyndall and others show that spontaneous generation is impossible. They spring from living germs, of which countless numbers float in air, and water, and adhere to all objects around us, waiting a favorable medium in which to germinate. Agassiz thinks that they are, for the most part, the germs of aquatic worms, passing through various transformations, to develop at last into worms similar to the caterpillar changing into the butterfly, or the maggot into the fly.

They swim continually, without rest or sleep, devouring the rotting organisms. They are seen sometimes dividing themselves so as to form new individuals. One kind dies,

and another comes to take its place. All this goes on continually, till they have reduced all the decaying matters to their primary elements of the mineral kingdom. They are, therefore, the great scavengers of nature. Without them the earth would breath nothing but disease and pestilence and death for man and beast. Thus, in the Providence of God, they purify the waters of earth and sea, and keep pure the air we breathe. They show a wonderful vitality, as they resist dryness, acids, heat and cold to rise again into new activity. They appear to have no sense but feeling. They are insensible to light, usually take in food through the sides of the body. They swim by little hair-like vibrating oars called cilia. They reproduce their kind with wonderful fecundity. Naturalists divide them into two great classes: those which have certain internal cavities, supposed to be stomachs, and those with cilia or hair-like appendages, which vibrate near the mouth to bring in a stream of water, which look in motion like revolving wheels. Hence they are called rotifers, that is, having wheels. The former class are still again divided into many families. In general, many kinds do not appear to differ much from so many little masses of jelly, yet they are ever active and swim from place to place, avoiding obstacles in their way. For their mode of life, they must have muscles, nerves and an organism far more complex than any plant. Although so small that the highest powers of the best microscope are required to study them, yet they appear as perfect, in their own way, as the largest animals. This shows that the living principle which animates them is perfect in its own nature as the living principle or soul of the largest animal.

The wheel animalcules, or rotifers, are higher organized than the others described above, and, like them, generally live in stagnant water, but sometimes in moist earth, though rarely are they found among materials foul and surcharged with decaying vegetable or animal matter, like animals described at first. They usually appear after the latter have eaten up the putrid matters and then the rotifers appear and live on the others. With two strong muscular jaws set with teeth they masticate their food. Traces of a muscular and nervous system have been found in them, while water, admitted into, and circulating in various parts of the body, serves to revive and aerate the tissues. They generate by eggs and are therefore the highest organized of the microscopic animals. We describe these as an example of numerous other classes which might be given.

It appears, from the discoveries of modern scientists, that microscopic vegetables or animalcules of various species get into the blood and tissues of animals and of man and there germinating they give rise to serious sickness and even to death. Thus one kind of consumption is caused by a microscopic growth, which destroys the lung tissue, while other bacteria cause fevers and troubles of that nature. Every one knows that terrible disease trichina spiralis caused by eating diseased pork raw.

Lately remarkable discoveries have been made in this direction and medical science, led by Pasteur, has begun to cope with these frightful diseases. We find by experience that each vegetable or animal growth wants a certain kind of nourishment, and when that is exhausted the organism, for want of it, languishes and dies. Thus the wise farmer will not plant the same crop year after year on the same soil, because the materials which the plant wants would soon become exhausted from the land. Now the same, in a degree, takes place in the living organism. Taking advantage of this, the doctor inserts into the blood of the system a certain kind of harmless vegetable or animal growth, or bacteria, which exhausts or uses up all the materials which the deadly growth, which causes the disease, lives on, so that if the disease is caught, it finds a comparatively poor soil on which to grow, and does not develop, for it has little of the materials it wants to live on. This is why people are vaccinated with cow-pox against the small-pox, and why persons are innoculated against hydrophobia and other deadly diseases caused by living growths within the body.

It appears also that the white round bodies, called the white corpuscules of the blood, attack the germs of disease and destroy them. Thus we see that when the germs get into a wound, the system throws out numberless white corpuscules, which appear as corrupted matter. We must say that in resting diseases, repairing injury, and healing wounds, the living organisms, especially the human body, show a wonderful wisdom given it by its Creator.

The next great division of animals is the radiates, called thus because their organs radiate from the mouth as from a centre. They all live in water, mostly in the sea. They appear to have no heart or circulating system and show little traces of nerves, as few nerves have been found in them. To them belong the corals, star-fish, sea-blubbers, jelly-fishes, sea-urchins, &c. The highest classes have scarcely visible a trace of a circulating or nervous systems. They were the

first animals which appeared in geological times upon this earth, and the remains are found in every part of the globe, showing their prodigious numbers before the appearance of man. Much of the limestone formations, earths and soils are composed of their remains, mixed in with the shells and bones of higher animal remains. Yet, mollusks once were very numerous, as their remains show.

The next branch of the invertebrate class of the animal kingdom is the mullusk, so called from the general softness of the body. They were first partly described by Aristotle, but Cuvier determined the characters and limits of this branch by studying their internal structure. The body is usually covered by a soft skin, which secretes a hard shell, which serves to protect the animal. They breathe through gills, and have a heart, white blood, slow movements, and generally only the sense of touch. Some are of one sex, others are provided with both. They propagate generally by eggs, the latter often united in clusters, with sometimes a hard resting shell. A few of these animals live on land or in fresh water, but they are more numerous in the sea. Those of the lowest species have no head, but two shells, as the clam, oyster, &c. They have a heart, with one ventricle, and two auricles. They bring forth their young alive, which at first swim till they find a suitable resting-place, when they become fixed and stay there the rest of their lives. They have three ganglionic nerves masses, controlling their movements. Some, as the clams, have a "foot," a contractible organ on which they move from place to place on the bottom, seeking food, with the back or hinge of the shell up. The seas of the early epochs, before the coming of man, were peopled with many gigantic species of mullusks, as we learn by their remains, now frequently found in the rocks. A higher species of the mollusks has a distinct head, with eyes, arms and mouth more or less developed. Some are naked, others are covered with shells. They have blood which circulates like the classes given above. They are mostly found in the tropical seas and are likened to marine butterflies. The individuals of one species, about an inch long, are so numerous that they form the chief food of the whale. The snail belongs to the fifth species of the order of mollusk. They have an air cavity which serves as a lung. There are numerous species of the mollusk order, especially marine or sea animals. They show the utmost wisdom of the Creator in their structure, and in the means adapted to procure food and reproduce their race. The higher class

of mollusks have locomotive and grasping organs attached to the head, all radiating on every side, in order to easily grasp their prey. Besides, they show an internal skeleton, combined in some with an outward shell. The sexes are distinct in each, and they bring forth their young alive. They live in water, are social in their ways and catch other animals for food. When disturbed some species emit a black fluid, which envelops them in a cloud, from which India ink is made. They have the senses of feeling, hearing, and seeing, and consequently show a more developed nervous system than is found in the creatures below them. To this class belongs the squid, octopus, nautilus, &c. The mollusks were very plentiful during the geological periods before man, as their numerous remains testify. They offer man a wholesome and abundant food, while their shells, often beautiful and brilliant, are much used in the arts. The finest dies and colors are made from their substance. Their species exceeds 25,000 in number.

The third great division of the animal kingdom mapped out by scientists is the articulates, which means composed of joints. They are generally more highly organized than the mollusks, although some may, in certain peculiarities, be found in organization below the mullusks. Their locomotive organs are especially developed. This also shows that they have a more perfect nervous system, which presides over all animal movements. They are very numerous, both in species and in numbers. They are formed most generally of hard outside tubes, filled with, and defending the organs within. In this respect they differ from the higher animals, which have the skeleton or hard bony portions within, and the soft muscles without. They are divided into eight classes, as worms, crabs, spiders, flies, centipedes, and parasites.

The latter live on other animals. Their movements are controlled by nerves uniting in centres or bundles, called ganglionic nerves, branching out from large central nerves united together by a central nerve filament, passing through the centre of the body. The first ganglionic centre in appearance approaches the spinal cord in the backbone of the nobler animals, and in man. The limbs are arranged in pairs, one or more on each side of the body, with nerves from the ganglionic centres, branching off into each limb. Especially in the insects the breathing apparatus is highly developed, the air or water, if they live in the latter, being taken in through holes, passing through tubes, and then

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expelled. The lobster is the largest animal of this division.

The highest branch of the animal kingdom are the vertebrates, so called by Lamark, because they have a bony or cartilaginous internal skeleton, of which the chief part is the backbone or spine. All the nobler species of this great branch have red flesh and blood, the latter more or less warm. Their muscles have large nerve centres, and generally a much higher and more perfect development than the other animals. Down the centre of the backbone runs a large nerve, or rather a continuation of the brain, called the spinal cord. At its upper end it increases and expands, forming the brain, which in man is enormously developed for his size, compared with other animals. The spinal column, or backbone, of animals has a distinct cavity between each bone, through which branch out the nerve fibres, which control the animal functions and are the ganglionic centres for those nerves which preside over the vegetative organs. The lower animals of this branch, as fishes, reptiles, &c., are cold-blooded, their flesh is mostly white. They take no care of their young. The nobler animals of this class have warm red blood and provide for their young, as birds and mammals. This branch is divided by Agassiz into eight classes, the myxonts, as the bug, the fishes proper, the ganoids, as sturgeons, selacians, as sharks and rays, amphibians, as frogs, &c., reptiles, as snakes, birds, and mammals, those which feed their young on milk. In the latter animals the head is very prominent and in man, who belongs to the highest rank, the mammal, the head rises to a great prominence, for it is the organ of his imagination and controls the whole organism. We will explain the living muscular and nervous systems of man more fully in the following chapter.

CHAPTER XIII.

The Skeleton, Muscles and Nerves.

Sensation, which includes the five senses, distinguishes animals from plants. The general organ, or instrument of sensation, is the nervous system. By the senses the animal perceives surrounding bodies, and by the knowledge thus acquired, it moves to seek food, to avoid dangers, or to propagate its species. To move, therefore, it must have various organs of motion. The organs of motion are the muscles and skeleton. By nerve force the muscles are put in action. These muscles must be united to some hard substances, in order to give them support. This hard substance is the skeleton. Hence, the nervous, muscular, and skeleton systems naturally follow sensation. We will treat first of the skeleton.

The hard woody structure of plants may be called their skeleton. They are surrounded with bark like a skin, and in the higher orders, growth takes place between the bark and wood. In some of the lower animals, as insects, shell-fish, &c., the skeleton is on the outside, while in all the nobler animals it is within, covered with the muscles. The study of the skeletons of various animals gives rise to the science of comparative anatomy. The human skeleton does not substantially differ from that of the highest animals, except that in man it is more perfectly arranged and developed. The skeleton is composed of 208 bones, not counting the teeth. The bones are found to be made of both mineral and animal materials. The former consists mostly of phosphates of lime, while the latter, like the cartilage of the ears and nose, is mostly of gelatine. The mineral materials give bone strength and hardness, while the animal matters give elasticity and vitality. In children, the animal substance prevails, and their bones are soft, pliable and yielding, while in old age the mineral predominates, and therefore they are easily broken. In the bones, as in all other parts of the body, we find the cell structure dense on the outside, and the inside loose and spongy. This shows the power and the

result of a force higher than the forces of the mineral kingdom, for it builds up cells in direct opposition to attraction, which builds globes, solids, or crystals. The loose bony structure is also found at the ends of the bones, where they are jointed to other bones. On the inside the bones are mostly hollow, carrying out that well-known principle of mechanics, that materials are strongest when made into hollow pipes. Bones, when bleached, are white, owing to the lime they contain, but in the living subject they are of a bright pink color, owing to the numerous blood-vessels which penetrate and nourish every part of them. The skeleton develops or weakens, as the muscular system is strong or weak. The bones are covered with a firm tough membrane, like a skin, enveloping them completely. It is composed of densely woven tissues. If the bone be destroyed and this membrane left, it will develop a new bone. There are numerous little spaces in the bones, each covered with a delicate membrane. After studying the laws of mechanics so as to arrange matter to sustain heavy weights, we are astonished at the structure of bones, for we find that the whole bony structure is arranged with the most wonderful knowledge of science and of the laws of mechanics to sustain the body firmly, to offer fulcrums for the muscles or to prevent injury to the system. All this shows that Divine Wisdom made the soul and determined its laws and mode of action in building and forming the body of man and of animal.

The structure of the bones of man differ from that of animals, because they are finer, firmer, and more perfectly arranged and adapted to his erect position. The internal structure of the bones are more wonderful under the microscope that the woody fibre of plants. They are all filled with spots, canals, blood-vessels and tubes, nerves tubes, radiating lamella and cells, all showing the most surprising structures and organs for growth, nutrition and the adaptation of wise means to an end. The bones before birth consist of series of cells, mostly of an animal cartilaginous nature. By the deposit of minerals, especially of lime, they become denser, harder and firmer, as the subject advances in years. This ossification begins at certain centres in the infant before birth. The first trace of it is often found in the clavicle. The long bones of the system have several centres of ossification, one for the shaft and one for each extremity. Ossification is complete at twenty-five or thirty years of age. Other parts of the body, as the ears, end of nose, &c., never

become solid. The lime used in these processes is supplied by nourishment, especially by the hard water we drink, which holds lime in solution. The shells of eggs are mostly of lime and they supply that material for the bones of the chick within. It is surprising how remarkably a bone unites when broken, and it at length becomes stronger than ever at that place, and all this without our knowledge or free-will. It is the mind of the Creator, who determines the laws of creatures and keeps them within these laws, for their own good and perfection.

All the bones in the system, united together, form the skeleton. Examined carefully it will be found to form three cavities, inclosing and protecting the most important organs. The most vital organ is the brain, the centre of the nervous system. It is inclosed in the skull. The next important organs are the heart, lungs, &c , and they are protected by the bones of the chest. The reproductive organs are partly shielded by the bones of the pelvis. These bony cavities are all united together by the spinal column or backbone. In the nobler animals four limbs are found, and in man they are the hands and feet. The bones of the extremities increase in number towards the ends, till in man they number thirty bones in the skull, hands and feet, and in fingers and toes. The longest bone in the body is the femur or thigh bone, and the smallest one of the bones of hearing in the ear. The bones of the skeleton are arranged in the most surprising manner in order to attain their object. In them no material is wasted, all is law, order and harmony. When the bone is to sustain a great weight, it is hard, strong and hollow, and the materials are disposed so as to offer the most strength, as the bones of the limbs; when it is to shelter and protect any important organ, it is flat, as the bones of the head, the ribs, &c.

The bones unite together by joints, but in order that they may not rub together, they are separated by a thick oily fluid, which takes the place of oil in machinery. The sockets of the bones of the limbs unite with the others by a round head, forming a universal joint, such as we often see used in certain kinds of machinery. In man the bones are better united together, and move more perfectly than the bones of any animal, because man's soul is of a higher rank in creation, and has a more perfect body than any animal. There is not a principle or law in mechanics that is not found used in all its perfection, in a more perfect way, in the construction of the skeleton of man and of animals, showing that God knew

and used these scientific laws long before they were discovered by man.

The muscular system is the instrument by which locomotion and the various functions of life take place. The plant is hard, unyielding, with slender long canals and cells filled with sap, where the functions of a slow and imperfect vegetative life take place. But as animal life is higher and more perfectly developed than that of the vegetable, so we expect a higher and more developed organism in the animal than in the plant. There we still find the cell as the fundamental character of organic life in the muscles of animal and of man, for the ultimate and smallest element of the muscle, as of all organisms, is the cell. They are elongated, or they enclose a cavity. But in the muscle they are arranged one to the other like beads on a string, so as to form fibres, usually placed in bundles of from 100 to 200 each, and supplied with nerves. A large number of these fibres and bundles make a muscle. Each muscle is surrounded by a delicate, structureless and colorless membrane, which envelops and supports the contractile materials of the muscles. As the human and animal soul has both the vegetative and animal functions, so we find the muscles divided into two great classes, involuntary and voluntary muscles, according as they are independent of, or controlled by the free-will. The involuntary muscles, which belong to the vegetative or plant functions in man and animal, as circulation, digestion, growth, nutrition, &c., are soft, pale, flattened bands, finally granulated with a long spot in the centre of each. The fibres of these muscles are arranged, layer upon layer, and unite at their ends, so as to form expansions surrounding the internal organs. These muscles act during our whole life, awake or asleep, and preside over the purely vegetative functions. The heart is the most perfectly developed vegetative organ, and is, therefore, somewhat similar to the voluntary muscles striped, but the fibres of the heart are smaller than those of the voluntary muscles. But in the heart the muscles branch and interlace each other in a remarkable way, so as to form a powerful force-pump to drive the nourishing, life-giving blood into every part of the system. The heart is placed in the centre of the chest, the point directed towards the left side. The left ventricle, beating to send the blood to every part of the body, gives a stronger beat than the right ventricle, which drives the blood only to the lungs. Therefore we feel the heart-beats easier at the left side than on the right side. By a wise Providence the most

vital functions, as the circulation and the other vegetable powers, act without our will, whether asleep or awake, because, if they depended on the will, we might forget them and die in an instant from our own neglect.

The most remarkable quality of the muscles is their power of contraction, by which the different organs and limbs of the body are moved. This takes place by a stimulation of nerve force, so that each muscle and fibre has its own nerve, by which it is united to the brain. When the nerve is cut or damaged the muscle cannot move. In the stripeless involuntary muscles, which belong to the plant functions, the contraction of the muscles is slow, gradual, and continued, as the movements of the bowels, liver, &c., while the action of the striped or voluntary muscles is quick, prompt, and vigorous, followed by a period of rest. If the movement is long continued, the muscles become weak and tired. This movement comes from the soul or living principle. It is transmitted to the muscles by the nerves, and nerve force or power is essentially necessary that it may take place, for if the nerve be cut the muscle cannot move.

The ends of the muscular tissues end in tendons, that is, round or flattened fibrous cords, white, shining, inelastic and exceedingly strong. By these cords or tendons the muscles are united to the bones. In this way the bones are like so many levers, with the fulcrum at one end, the resistance at the other end, and the power in the middle. That is, one of the other bones is the fulcrum, the pulling of the muscles is the power, and the resistance is the limb or object moved. In this case the power is at a disadvantage, but according to the science of mechanics, the system could not be constructed in any other way so as to show such beauty, harmony, and power. Here, as in every place, we see the foot-prints of the Designer, God. The force exerted by the contraction of the muscles is certainly wonderful. A muscle in action becomes thicker and shorter, and by that pulls the bones to which it is attached by the tendons. The energy and rapidity of muscular contraction is seen especially in the insect and birds, for their perfection ends with animal life, while the whole object and end of man's organism is reason, or the mind, as will be explained farther on. Then his muscular development is not as great as some animals. The muscles cover the whole bony skeleton, and occupy the whole space, from the bones to the skin. Although there are 527 muscles in the human system, yet they are shaped, arranged, and placed with such beauty, symmetry,

and order, that the outlines of the body are exceedingly graceful and beautiful. Not only that, but every muscle, bone, cell, and organ, is made according to the line of beauty, which is a curve, a part of a circle. Thus the beauty of God is written within and without on every creature he made, and the circle, which, without beginning or end, tells of his eternity, is the model according to which he made nature, especially seen in the cells of living organisms. We also call your attention to the beauty, symmetry, and perfect proportions of the human form, to the colors of birds, insects, and animals, to the poetry and grace of their movements, whether swift or slow, all show the design of a Supreme Mind, of which they only reflect the image in their own feeble way. No principle of mechanics or of science used in machinery, bridge-building, architecture, or in any of the arts, but what is found in the human system, used by God in a more surprising manner.

We now come to the nervous system, which above all distinguishes plants from animals. It is the seat of sensibility or sensation, by which animals receive impressions from surrounding objects, and by which the creature is brought into relation with surrounding bodies. The more perfect the animal, the more developed will its nervous system be found. In the lowest animals, owing to the delicacy of their tissues, no nervous system has yet been discovered, but we are sure it is there, for they move rapidly and knowingly, and because the nervous system is the seat or cause of all muscular movement. The nerves are white, cord-like bundles of filaments, branching out from their centre, the brain, and distributed to the whole organism, to which they give life, movement, and all animal functions. The nerves are white or gray, bright and glistening in color, and of considerable strength, caused by the white tough tissues enveloping them and covering every part, and penetrating into the interior of the nerves. We find, also, in the nerves numerous small blood-vessels, which nourish them. The nerves are contained in round or flat channels, ramifying and branching into every part of the body. They are very small, 2,000 making an inch in diameter. They consist of a fine, structureless, investing membrane, a layer of semi-fluid transparent substance, while within is a soft granular mass called the axis. They are similar to the nerve centres in the brain, except that in the latter they are larger and covered and invested by a peculiar membrane wanting in the nerves. These filaments in the nerves are parallel one to the other,

each having its own investing membrane. As the nerves pass outward from the brain or spinal cord, they divide into smaller and smaller branches, till they end in the fine and almost invisible branches in the organ to which they belong and to which they give nerve force.

In the radiates, as the star-fish, the nervous system is quite simple, being composed of a chain of ganglionic centres united one to another by nerve filaments. In the higher animals and the human system these ganglionic nerves preside over the vegetative functions and they unite to the spinal cord and larger nerves by the same kind of nerve filaments.

In the mollusks, as the oyster, &c., the ganglionic nerve system is more complicated, because they have distinct digestive and reproductive organs and have gills. One of those ganglionic centres, larger than the others, represents the brain.

The articulates, being still higher in the rank of creation, have a still more developed nervous system. In each ring is found a corresponding nerve centre, while the forward segment, the head, has a very large developed ganglia bulb, taking the place of the brain in the nobler animals. Along the length of the body the various nerve centres are united by nervous cords, the first indication of the spinal cord of the vertebrates. The insects have remarkably developed nerves, corresponding to their rapid movements.

The vertebrates, as horses, dogs, and man, have the most highly developed nerves. The system in them chiefly consists of the brain in the head and the spinal cord in the centre of the back-bone. The ganglionic nerves preside over the purely vegetative functions, while the nerves proper of the brain and spinal cord control the animal functions. There are two kinds or classes of ganglionic nerves, one class forming part of the animal, cranial or vertebrate systems, the other those described as belonging to the vegetative functions. The latter are found embedded along thed sies of the forward part of the spine. Therefore we may lay down the principle that the nerves proper of the brain and spinal cord control the animal functions which fall under the command of the animal, while the ganglia nerves preside over the involuntary functions of the vegetative system, as the beating of the heart, digestion, generation, &c. From the brain and spinal cord branch forty-four pairs of nerves, extending to every organ and sense of the body. The nerves, branching out in the forward part of the spinal cord, extend to the voluntary or animal functions and those coming from the back with the

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ganglia preside over the vegetative or involuntary functions.

Again some nerves, when excited in their own proper way, produce light if of the optic nerve, from the eye, or pain if cut, or muscular movement if excited. Then the nerves are divided into sensitive, when belonging to the senses, common to sensibility, if they cause pain when injured, or motive nerves if they end in muscles, or the nerves of special senses, if they belong to the five senses, as seeing, hearing, &c.

The spinal marrow is composed of two columns, the forward one relating to movement of the muscles, the one behind to the nerves of sensation. Experiments show that the nerve force flows from the body to the brain, through and in the posterior column. By that we receive all sensations from the body, while the nerve force travels from the brain to the muscles, outward through the forward column of the spinal marrow. The nerves of the right side of the body cross those of the left side in the upper part of the neck and enter the opposite hemisphere of the brain. Therefore an injury of the right hemisphere of the brain will be felt in the left side of the body, and in the left on the right.

The brain presides over the voluntary movements of man and animals. It is the centre and the chief organ of the nervous system. The brain is composed of about six-eighths of water, and in ultimate composition it is like an emulsive mixture of albumen, fatty matters and water, holding in solution many minerals, of which the phosphates predominate. Under the microscope, the structure of the brain is found to be formed of fibres and cells, all of white and gray matters. In the lower animals the brain appears to be only a large ganglionic centre or bundle of nerves, while in the higher animals, and especially in man, it is divided into the cerebrum, the latter formed of two hemispheres, and the cerebellum. The cerebrum, with the spinal column and the nerves, is the seat of the imagination, while the cerebellum evidently presides over the voluntary movements of the muscular system.

Many authors of little experience and knowledge seem to think that the nerves are like so many telegraph wires, leading from the brain and conducting by electricity the commands of the soul from the brain to the other organs of the body. But this is shown to be false, as extensive experiments, carried out by the most eminent scientists, show that nerve force differs entirely from electric force, as it cannot move the most delicate electrical instruments. Nerve force is evidently manufactured in the nerves and brain, and it is a vital force altogether separate from and different from any physical force, as electricity.

The nerves of sensation are the seat of pain and when they are injured we suffer. They are mostly distributed to the outside of the body, because there we receive injury from outside causes. You cannot prick through the skin with the finest needle without cutting or piercing one of the fine nerves and causing pain, whereas a knife may be driven into substance of the brain or lungs, liver, &c., without feeling it. Pain, then, in the designs of the bountiful Creator, is to warn the creature of danger and injury to the organism. Little pain is felt in the face, as it has to bear the cold of winter and the rigors of climate, while in the eye the smallest foreign body will cause the most exquisite pain, because the latter is such an important sense and neuralgia of the heart causes the most frightful sufferings, because the heart is such an important organ. Thus everywhere is seen the wonderful design of the Master Workman, God.

CHAPTER XIV.

The Five Senses.

Through the five senses, touching, tasting, smelling, hearing, and seeing, the animal and man perceives exterior material things and enters into relation with surrounding bodies. By these senses, which are the five windows of the soul, we perceive the corporal beings of the surrounding world. They are partly spiritual and partly corporal faculties, for although they belong to the soul or living principle, still they make use of the natural forces of the mineral kingdom. They vastly increase our knowledge. Being compound powers, that is, not entirely spiritual or corporal, but of both, that is, of the organism, they cannot rise above their nature, and therefore, by these five senses, we see only the accidents, appearances, or qualities of bodies. But the senses cannot see the spiritual, for they belong to the organism, which is both corporal and spiritual, because the incorporal or pure spirit is above any bodily sense. Thus, while the vegetative powers of plants, of animals, and of man exert their forces within the organism, as in digesting, in nutrition, and in growth, the five senses go higher and enter into relation with all surrounding bodies which are outside the organism and which are not a part of the living body.

Each of the five senses has its own particular nerve, or nerves, leading from the organ to the brain, and by this the impression received is conveyed to the soul. Through these organs, therefore, the soul receives the impressions of the accidents and qualities of material things. If the senses are destroyed, the soul can no longer receive these sensations or impressions of bodies. When that sense or that particular window is destroyed, and no more can the soul look out through it. Then, when the eyes are destroyed, sight is lost.

All animals have one or more of the five senses. The lower animals have only touch, and that, a little modified, becomes in them taste. The nobler animals have all the five senses, more or less acute and developed, according to

their manner of living. Thus, the dog has a fine and acute sense of smell, because it is a hunter, the rabbit, fox, &c., hear many sounds we cannot perceive, because they are hunted. But the sense of touch is very imperfect in all animals. The eagle, condor, &c., have a wonderfully developed sight, because by that they perceive afar their prey. Then, all through nature, we find that the animal kingdom has that sense best developed which it wants most for its state or habits of life. Thus we find in animals that the senses are the most acutely developed, according to their nature, mode of living, and to the laws of their life laid down by the Creator of nature. You see the eyes of birds on each side of the head, so they can easily see in every direction, so that they can escape their enemies, while the eyes of lions and of other powerful animals are in front, because no animal will attack these powerful beasts.

All animals have one or more sense largely developed to the weakness or loss of the other senses, while man alone, of all animals, has all his senses fully and evenly developed and perfected, because he is the most perfect animal which walks the earth. This is not surprising, for, as we have said, the human soul has all the qualities of the vegetative and animal souls, but in a more developed and completed nature. Therefore we are not surprised to find that in man the five senses, taken altogether, are the highest developed, for he is the highest developed vegetable and animal on this earth.

Feeling takes place by physical contact of the body with the skin ; taste by a chemical decomposition in the mouth ; smell by the vapors of the odorous materials acting on the nerves of smell in the nostrils ; hearing by the vibrations of bodies on the nerves of hearing, while sight is the vibrations of an imponderable ether acting on the retina of the eye. Thus we rise from the lower and grosser to the higher and almost spiritual sight, as a preparation for the pure spiritual acts of the mind and free-will of man, angel and God.

The lowest sense is touch. It resides in the skin, surrounding the whole body, but particularly in the hands and tongue. In man the tip of the tongue has the most acute sense of touch. By touch we learn the size, shape, weight, hardness and temperature of bodies. Many writers think that touch also helps to educate the eyes, so as to judge the distance of objects. The sense of touch is distributed to every part of the skin. The skin is composed first of the

cuticle, or outward skin, formed of a compact intergrowth of cells, filled with a horny substance, which covers the whole external surface of the body. It has no blood-vessels or nerves and therefore it is not the seat of pain. If it were otherwise, everything which touched the body would cause pain. Under this skin is the mucous layer, which covers the whole interior of the body. The latter is seen especially on the lips and in the mouth. Being more or less transparent, you can see the blood-vessels and tissues under it. That is the reason the lips and mouth are red, for they are covered only with the mucous membrane, and not with the outward skin. Under the mucous layer all over the body you will find the true skin. Its surface consists of numerous fine round cones, called the papillæ, each being the end of a nerve, which winds around in forming and making a little body of an oval shape. These are the organs of touch. They are very numerous on the ends of the fingers, giving rise to the peculiar ridges or stripes of the inner parts or palms of the hands.

A number of these nerves unite in branches as they tend inwards towards the centre of the body or the large trunks of the nervous system. Then again they unite in still larger trunks or branches, like streams flowing towards the ocean, till they unite in great bundles in the spinal cord or brain. But in no case do they unite together so as to lose their identity, but each, like the finest telegraph wire, penetrates inwards, separate and insulated, till they are lost in the structure of the brain. Thus sensation remains separate in each nerve, till it is communicated to the centre nerve, the brain. In this way we refer all sensation to the place where the nerve ends. If it were not thus that the nerves remain isolated, this would not be true and we could not tell the place of sensation. When a limb is lost, any irritation of the nerves feels as though it took place in the limb which has been amputated long ago, because the nerves, by their very nature and by the law of our being, are made to convey to the brain only such impressions as take place in the places and organs to which they branch.

The more movable the organ, the greater the sense of touch. Thus it is greater on the feelers of insects, on the trunks of elephants and on the human hands and tongue, but least between the shoulders in man. As it has been proved that the nerves themselves cannot perceive heat or cold, it is supposed that there are in the skin certain organs, or special nerves, by which we feel heat or cold, but these

have not yet been discovered. Besides, warm bodies appear lighter, and cold bodies heavier to the touch.

The sense of taste appears to be a higher modification of that of touch.

In the sense of touch, the contact of the body alone is required for the sensation, but in the sense of taste the body is dissolved by the saliva of the mouth and a chemical change takes place in the mouth. Taste, then, is a sense superior to touch. It is situated in the mouth, especially on the tongue and palate. But writers do not agree whether the other parts of the mouth possess the sense of taste or not. The entire upper part of the tongue is covered with little elevations called taste papillæ. They are visible to the naked eye. Some end in a bundle of fibres, others are wide and bushy. At the root of the tongue is found a half circle, formed by larger papillæ, each surrounded by a small depression. The papillæ are formed of oblong cells, each the end of a nerve passing from the nerve of taste. The latter nerve is connected with numerous motor nerves of the lower part of the head, while the nerves of the nobler senses are entirely free from such an admixture, each nerve of the higher senses being separate and free. Besides these, the tongue is also provided with the lingual nerves, the seat of its sensitiveness and of its touch. By taste we perceive that which is good food, and distinguish it from that which is bad food. When hungry, the taste of food is exquisite, while when satiated after a meal the best food seems to us repulsive. When the nerve of taste is cut or diseased, then everything loses its taste, and the bitterest substance will be eaten with avidity by animals. All this shows that Infinite Wisdom formed taste as a sentinel for food, accepting that which is good when wanted, and rejecting that which is bad for the system.

The sense of smell enables us to perceive odors. Thus certain substances, in a gaseous form, when breathed into the nose, together with the air, create in us the sensation of smell. Then smell is higher than taste. For while the latter is caused by a chemical change in the mouth, the former arises from the inhaling of a gas, which comes in contact with the olfactory nerve of the nose. This nerve takes its rise in the forward part of the brain, in that part called the olfactory ganglion. Its fibres branch out forwards at the base of the skull, and force their way through the cibriform plate, which lies between the eyes. They come through by a large number of openings, and spread into the upper

part of the nostrils. The lower and middle part of the nose serve chiefly for breathing, for there the air is warmed and sifted from impurities before entering the delicate lung tissues. Like the air passages of the wind-pipe and lungs, this part of the nose is covered with extremely fine hair-like processes, which by a continual waving motion propel outward all mucous secretions, as well as dust, into the forward part of the nose. The lower and middle portions of the nose, being the seat of smell, is of a different organization than the other. It is yellow in color, but it is not covered with the hairy epithelial cells, but with cylindrical epithelial cells, presenting their broad end to the outward surface. Tracing them inward we find them swelling into nut-like prominences, whence they prolong into long fine rods, ending in the special nerves of smell.

The odorous substances cannot produce smell by acting on these nerves, but only on the olfactory mucous membrane. It is evident that smell is caused by the action of the odorous gases mixed with air, which act on the ends of the nerves ending in the mucous membrane of the nose. It is certain that the sensation smell is caused by both chemical and mechanical action, which excite the olfactory nerves, whence by these nerves the sensation is carried to the brain. If we hold our breath, the sense of smell ceases, and it is stronger when we snuff up the air. We cannot smell in water, yet many fish appear to have nostrils, and smell their food.

The amount or quantity of substance which we can perceive by smell is exceedingly small. Valentine states that we can perceive about the three one-hundred-millionth of a grain of musk. Smell is therefore about five times as delicate, or as sensitive as the most perfect spectrum analysis, which surpasses all other instrument in chemical analysis. The development of smell is even far more astonishing in the lower animals. The dog has a very acute sense of smell. Wild animals will smell the hunter at great distances, especially when the wind blows from him to them. This sense was given them by the Creator to protect them against their foes. As a general rule, harmless or useful materials have a nice smell, while injurious substances give out a disagreeable odor. Thus the object of this sense is evidently to warn creatures of hurtful food. Standing as a sentinel above the mouth, it is ever on the alert to warn of danger or tell of good wholesome food, before being taken into the system.

In man smell not only aids us in the search of food but also adds to our pleasure. Thus we like the odor of flowers, of fruits and of smiling fields. Smell is of great advantage to animals which hunt their prey. In them this sense is often enormously developed, and they are sometimes entirely guided by it. They follow it by instinct and not by education, as it is in their nature to hunt for their prey.

The sense of hearing is higher, nobler than that of smell. In the latter the material fumes of odorous substances by chemical action excite the olfactory nerve of the nose, while in the former, the waves of sound agitate the auditory nerve of the ear. The only connection between the sound-giving body and the sense of hearing are these vibrations. If these vibrations are regular it is a musical note, if they are irregular it is noise. The sounds are regular when given by an elastic body, and irregular when given by an inelastic source, or when they are broken or interrupted.

In fishes and many of the lower animals, there is visible no external ear, because living in water the vibrations of sound easily pass into the head, where they excite their sense of hearing. In the higher animals and in man an external as well as internal ear are found. In many of the animals, where the sense of hearing is more acute than in us, the external ear is in the form of a funnel to catch the sounds and concentrate them in the inner ear. The weaker animals being preyed on by the stronger, have a very acute sense of hearing, which warns them of any threatening dangers, while man, the king of creation, is not so subject to danger, and, therefore, his hearing is not so developed to the detriment of his other senses.

The external ear of man is more or less flat, because, as we sleep mostly on one side, in this way it does not interfere with our repose. The outer ear in man, therefore, is composed of soft yielding cartilage, so as to easily bend. It has many coils, folds and furrows, evidently intended to confuse insects, and thus prevent them from finding the canal leading inwards to the drum. The sides of this canal secrete a substance called ear-wax, evidently intended to keep the drum moist, and to prevent insects from entering and injuring the delicate membrane of the drum.

The auditory canal, more than an inch long, leads to the inner or true ear, which is buried deep in the solid bony structure of the head, so as to prevent injury. This canal ends in the drum or tympanic membrane. Behind the drum is a

hollow called the tympanic cavity. It is filled with air and opens down to the mouth by the Eustachian tube, which is usually closed, but opened in the act of swallowing.

The drum, which entirely closes the auditory canal, stretches obliquely downwards and inwards. It has not an even surface, but bulges inward, because it is held in tension by a small bone called the hammer. Every one knows that the head of a drum will sound and receive sounds better when it is held in tension, than when loose and flabby. In the same way, and following the same law, the drum of the ear is held in continual tension by the three little bones in the ear, so that it receives each and every sound and noise which penetrates to its surface. Here again we see the wisdom of the Creator in adapting the ear to the most perfect laws of mechanics and of sound.

The waves of sound, either high or low, or of any timbre and degree, entering the auditory canal, strike on the drum, and set it in vibration. These vibrations, being caught by the little bone attached to the drum by the hammer handle, are transmitted to the anvil, another little bone into which the head of the hammer dove-tails like a tooth-saw. The end of the anvil unites to the top of the third little bone called the stirrup, which in its lower part unites to a membrane which closes a little hole leading into the inner ear, behind which is the fluid which fills the whole labyrinth, or inner ear, within which the sensation of hearing has its seat.

These three bones, the smallest in the whole body, are the means by which the rough physical vibrations, received by the drum, are carried to the labyrinth, wherein they excite the nerves of the ear, and are changed into the sensation of hearing. The hammer, anvil, and stirrup are within the tympanic cavity or middle ear, which is filled with air, and which, by the Eustachian tube, communicates with the pharynx.

Following the recent investigations of Helmholtz and the discoveries of Corti, we find the sense of hearing one of the most remarkable organs of the body. We also find that it is formed according to the laws of sound, as recently discovered by advanced scientists. Near the little opening where the stirrup is fastened, and to which it gives up its vibrations, rise three semi-circular canals, at right angles to each other. On the other side coils a remarkable organ, shaped like a snail shell and called the cochlea. These all form the labyrinth or inner ear, the whole of which is filled with a transparent fluid. Near the opening, which is closed by a mem-

brane, against which the stirrup presses, is another oval opening, closed also by a yielding membrane, which bulges out if the sound waves are too strong. As the crystal water filling the whole inner ear can be but slightly compressed, this membrane acts as a safety valve, so that the inner ear, with its numerous and wonderfully delicate organs, may not be injured by loud or harsh sounds.

The ear, then, is composed of three parts, the outer, the middle, and the inner ear. In the latter the sensation of sound is perceived. It is called the labyrinth. The whole of the labyrinth is deeply imbedded in the bones of the skull, which protect it from injury. We would draw your attention to the clear crystal fluid, filling the labyrinth or inner ear. The vibrations of the air sets the drum in a tremor, which by the stirrup sets this fluid in vibration, so that it shivers at every sound.

The cochlea or organ like a snail-shell winds around twice and a half and ends in a little bulb on the top. All looks somewhat like a snail-shell. The labyrinth again is divided into three parts, the vertibrate, the ampulla, and cochlea. The whole interior of these organs is covered with a membrane, in which the nerve of hearing ends in numerous microscopic filaments. Rising from its walls are hair-like processes, which are thrown into vibration by the fluid, which is set in vibration in its turn by the vibrations of the stirrup, anvil and hammer. The walls are covered with epithelial cells, in which the hair-like processes, the ends of nerves, are rooted. These hair-like organs are evidently to catch certain sounds of a heavy rough nature.

The cochlea is a wonderful organ. Corti first described its anatomy. Within the bony walls of this snail-shell, or winding labyrinth, is a hollow passage, which winds up to its summit like a spiral staircase. This passage is again divided into two canals by a dividing wall of bone, as it winds around twice and a half, like a spiral sea-shell, to the top. But this dividing wall does not quite extend to the outer walls of the cochlea, but it is united to them by a peculiar process called the spiral membrane. The whole interior is filled with the crystal fluid mentioned before. From the end of the bony lamina dividing the cochlea to its outer walls, shoot numerous peculiar organs like piano wires, with thin dampers, each of which forms a bow. These are Corti's fibres. They are so called from their discoverer. About three thousand of them have been counted. Each of Corti's fibres forms a string, which vibrates to a musical tone

of its own quality and pick, so that when the fluid is set in motion by the vibrations of the stirrup, which come through the three little bones from the drum, the string, which corresponds in length and weight to the tone, vibrates in unison with it, according to the well-known laws of harmony and of sound. The nerve of hearing enters the centre of the cochlea, and there it branches out to these strings, so that each nerve branch ends in one of the fibres of Corti. Thus the ear shows us the most perfect harp, piano, or musical instrument, far surpassing any musical instrument ever made by man. But what appears singular is that the longest strings are in the top of the cochlea, and the smallest and shortest are in the lower part, so that we hear the low musical tones by the strings of the apex, and the higher by those of the lower part of the cochlea. Perhaps the low tones are magnified as they enter and rise through the winding shell, or horn-like organ, till they arrive at the top, the same as musical tones are magnified in an opposite way as they come forth from a wind instrument.

We have not time to go into details to show that only a Supreme Intelligence, who had a knowledge of music far above that of any man, could have formed the human ear according to such perfect and strict musical laws, long before these laws were known to man. The ear alone would show that there is a God.

Sight is the highest and noblest of the five senses. While the other senses are more or less confined in their extent, the eye is bounded only by the uttermost confines of vision ; by the invention of the telescope, the microscope, and spectroscope, new worlds have been opened up to man, and our knowledge of nature and of the universe has been greatly extended. In the lower animals, which are preyed upon by others, the eyes are on the side of the head, so that they can see danger threatening them from all sides, while in man they are in the front to guide his footsteps during life and to enable him to contemplate the beauties of the world spread out above, around, and before him. The organ of sight is the eye, the most important sense in the animal kingdom. It is variously constructed in different animals. In the insects there are usually found a number of eyes. Thus in the common house-fly we find from five to six hundred eyes arranged with varied beauty, somewhat in the form of the cells in the honey-comb, each cell being an eye and having its own lens and retina. The eye of an insect is one of the most beautiful sights, when viewed by a

powerful microscope. They are often depressions, each with its own special lens shining forth like a valuable precious stone, sparkling and glistening with all the beauties of the rain-bow. In fishes, the crystalline lens is large, as they live in water, which is more dense than the air, and, therefore, it is not so necessary to condense the rays of light onto their retina as in animals living in the air. In some birds, as the eagle or condor, the sight is greatly developed, so that they can see their prey for miles. In insects the eye appears to be a highly developed microscope, for they see minute things far better than man. In each creature, the eye, like the rest of the organism, is adapted by Divine Wisdom to their scope and mode of life.

The object of sight is the whole visible world. The most important organs in the animal are double, and for that reason we have two eyes, so that if one is injured or destroyed, we still have the other left. In man, the eyes are situated in round, cone-like depressions in the skull, so as to protect them from injury. At the apex of this depression opens the canal in the skull, through which the optic nerve passes from the eye into the brain.

In order to quickly direct our attention to different objects the eye can easily be moved in different directions. For this, the funnel-sockets are filled with masses of fat, on which the eye-balls are imbedded, and roll as in a socket-joint. Each eye-ball is moved by four muscles, the outer ends of which are hitched to the eye-ball like the bridle to a horse's head, and the inner ends to the bony walls of the sockets. One muscle passes through a ring above like a rope through a pulley, and another below the eye-ball in the same way. By them the eye-ball can be rolled or twisted from side to side. The movements of the eye balls take place almost instinctively, and without our knowing it, and as soon as we want to look at any object. Besides, the outer muscle of one, and the inner muscle of the other eye are pulled at the same time. By this both eyes are at the same instant turned in the same direction. The various ways in which these muscles move the eye-ball, not only allow the picture of the outside world to be painted or photographed on the retina of the eye, but these movements also give life, brilliancy and expression to the face.

With one eye alone we cannot measure distances, unless we are taught beforehand by the experience of the sense of touch. But with both eyes, as the prolonged diameters of both eye-balls form an angle, we are able to judge of dis-

tance, of perspective, and proportion. This law is used in the construction of the stereoscope invented by Brewster, by which with two pictures, taken at points as distant from each other as our two eyes, we can see pictured objects in relief. By taking advantage of this law of vision, many curious optical illusions may be performed. Although this law of optics was discovered only in the last generation, yet, according to it the eyes of animals and of man were made from the beginning of their creation. Evidently God is a wonderful scientist, for he makes use of science and of mathematics in all his works.

Helmholtz patiently investigated the eye and discovered many secrets till his time unknown. We will try to resume some of his most important discoveries. The eye, nearly round, is made of many coverings, which give it shape and strength. Nearly half the outside covering is the white sclerotic coat, called the white of the eye. This is opaque, firm, hard, and protects the eye from outside dangers or damages. In the centre and directly in front you see the clear, transparent cornea shining like glass. It is almost as thick as the other coat described above, but it rises above the former in front, like a watch glass. It is as transparent as the clearest crystal. Through this the light enters the eye. As a surrounding rim within the cornea, lies the choroid, colored deep black and filled with blood-vessels. Black absorbs the light, and in the construction of magnifying glasses, so as to make optical instruments define clearly and brightly the objects they magnify, we cover the interior of the tubes with black, so as to absorb any light which may fall on them. This we find the Creator has done when he made the eye and before we knew this law.

The black pigment cells on the inside of the eye are arranged according to geometric lines and angles and they present the most beautiful mosaic figures. Coming out from the choroid towards the centre we find the iris. This is colored brown, gray, blue, &c., and gives color to the eye. It is a delicate curtain, stretched over the eye, so as to regulate the amount of light penetrating into the interior. In bright day-light, it nearly closes up, while in the gloom, it is almost entirely drawn back. This can be better studied in the eyes of cats and owls, which prowl around during night, and therefore the iris of their eyes are more developed. But no animal can see in intense darkness, as light is the medium of vision. This movement of the iris takes place involuntary and without our knowledge. It is therefore wholly beyond the con-

trol of our will. The iris was made to give a clear and distinct outline to the image found on the retina of the eye. Photographers, scientists, &c., who use telescopes, microscopes and cameras, constructed somewhat like the eye, have an instrument called a diaphragm, with a veil having a small hole in the centre like the iris. They use this iris or diaphragm when they want to take a clearly defined picture or get a clear view of any object. In the centre of the iris will be seen a round hole, the pupil. By this the light enters the eye. In animals, as cats, horses, &c., the pupil is not round the same as in man, but oval or long. It is of different shapes in different animals. This is evidently on account of their way of living, or their manner of procuring food, while man's eye was made to view all visible objects all around him and therefore the human iris is round. Just behind the iris is the crystalline lens, which is the most perfect and remarkable optical lens ever constructed. For while the glasses of telescopes and of microscopes are made of hard glass, the lens of the eye is formed of layers of yielding transparent materials, which allow the light to freely pass through. The object of the lens in any instrument is to collect and concentrate the rays of light on one point, in sight on the retina at the back of the eye. If man had studied the eye and the means there used to attain this object, the telescope and microscope would have been invented at once, and centuries before men ever stumbled accidently on the wonderful power of magnifying glasses. Thus the Creator in nature is always far in advance of man. By a curious system of muscles, the lens of the eye can be instantly drawn back or pushed forward, flattened or bulged out, accordingly as we look at objects near or far away. By this means the eye is at the same time a microscope and a telescope. That change takes place so quickly and all is done so rapidly and perfectly and without our free-will, that we are totally unconscious of the act. This shows how more perfectly God works than man. For no optical instrument can be, at the same time, a microscope and a telescope, because the lenses are made of hard glass and not of yielding tissues, like the lens of the eye.

In fine optical instruments, a curtain called the diaphragm is used so as to cut off and absorb some of the rays of light which fall on the edges of the lens. In this way only the rays falling near the centre of the lens pass through, and the image is clearly and brightly defined. This is also the object of the iris in the eye, for it covers the outer edge

of the lens of the eye and allows only the rays striking the centre to pass. Besides, when we use powerful lenses in optical instruments, they refract, or bend the rays too much, and they color the outlines of objects with the colors of the rainbow. We get over this defect by uniting to the lenses other lenses, which do not magnify so much. But this is not the case with the eye. It magnifies just enough and no more, because it was made by the great Creator, who makes no mistakes.

Before the lens and behind the cornea of the eye, is a space filled with a clear liquid called the aqueous humor, and behind the lens the whole eye-ball is filled with a liquid-like fluid called the vitreous humor. These humors are as clear as crystal and allow the light to freely pass through them, so as to fall upon the retina, on which is formed the image of the object seen. The organs we described, therefore, all tend towards this one end, that the rays of light may be united on the retina, so as to form an image of the object we see. We have not space to enter into details to show that the eye is made according to the laws of optics. The farther we investigate light and the more we advance in the construction of microscopes, of telescopes and of optical instruments, the more we are astonished at the wisdom shown by the Divine Intelligence in the construction of the eyes of animals, insects, and of man. All shows a most astonishing knowledge. Writers of great name and fame have not hesitated to say that God's existence could be proved from the construction of the human eye alone.

On the retina of the eye the image of the object is formed. There, then, takes place the physiological act of vision. The structure of the retina is peculiar. The ophthalmoscope, invented by Helmholtz, enables us to study the interior of the eye. The camera, then, used by the photographer is formed somewhat like the eye and according to the same laws, but wonderfully more imperfect than the eye, so that in vision we can say that each object we see photographs its image on the retina. In every camera used by the photographer the image is reversed, that is, it is seen upside down. This also takes place in the eye, according to the well-known laws of light. But the optic nerve penetrating inwards, before arriving at the brain, crosses as the nerves of the spinal column in the neck, and thus we see the objects in their upright position.

The nerves of the five senses have been made to transmit only their own peculiar sensations and they can give us

knowledge only of their own objects. Thus a change in the nerves of touch gives only the impression of feeling, in those of hearing the sensation of sound and a change in the optic nerve that of light. Therefore, when we rub the eye or touch the optic nerve, we perceive only the sensation of light. The optic nerve, which is the special nerve of sight, divides into two trunks or branches soon after leaving the brain and a branch goes to each eye. The nerve enters the eye at the back near the centre and branches out into fine filaments, extending to every part of the interior and thus forming the retina. We find the retina nourished, like the other parts of the organism, with arteries, veins and minute blood-vessels. The eyes of cats and of some other animals have a peculiar brilliancy in the dusk, caused by a carpet of glittering fibres, which lie behind the retina and act as a powerful reflector. Investigations show that they do not give forth any light of their own, as was formerly supposed.

The retina of the human eye is a highly complicated structure. It has been lately the object of careful study. As far as our knowledge has advanced, up to the present time, it shows the most wonderful use of means to an end employed by God in using the laws of light, of physics and of chemistry, so as to enable us to see. When a fine section of the retina is examined under the microscope, it is found to be composed of ten different layers. The inner layer consists of nerve fibres, in which the optic nerve loses itself in numerous minute nerve structures. One spot near the centre of the retina is free from nerve fibres and it is called the yellow spot. This is the least sensitive part of the retina. Beginning within, and tracing the optic nerve outward, we find the limitary membrane, then a layer of nerve fibres, a layer of nerve cells, like the ganglion cells of the brain, afterwards a granular layer of gray masses of fine granules, the inner granular layer of round little grains of nerve matter, the intermediate granular layer with small fibres, the outer granular layer similar to the first, and a second fine membrane. Then comes the layer of rods and cones, consisting of small, unconnected, transparent rods, packed closely together like palisades, parallel one to another, and at right angles to the retina. Here and there between them are found small rods, which expand at the ends, and are called the cones. These cones sit very close together in the yellow spot, where there is a depression in the retina, but decrease in numbers towards the outer edges of the retina. The light, which enters the eye, must pene-

trate all these ten layers of nerve matter, till it comes to the layer of rods and cones, beyond which it cannot penetrate, because, then, it is absorbed by the black pigment, which covers the whole interior of the eye beyond the cones and rods. The rods and cones, when seen by the microscope, seem to form a continuous covering, closely resembling beautiful mosaic work in regular geometrical shapes, figures, and connections. Here, again, we find the footprints of the great Geometrician of nature. The image of the object seen is projected on, among this wonderful structure of nerve layers, ganglionic bulbs, cones and rods. We know the effects of the chemical action of light in growing plants, on the silver of the photographer, and in the arts and sciences. The light forming the image of the object on the retina, evidently acts as a mechanical agent in moving the rods and cones, besides causing chemical action in the nerve fibres. This sensation is sight, and in this way we see. What a wonderful instrument is the eye, and who will say that the Supreme Intelligence did not preside over the creation of the soul of man and the living principle of beasts which built and unconsciously constructed such a surprising optical instrument as the eye? We must remember that the eyes of animals, of insects, of fishes, and of various creatures are made in different ways, according to their modes of life and of procuring their food. But in them we find the laws of optics and of the sciences used in infinitely wise ways to obtain the end. All this could only be done by the infinite Scientist, God, and not by blind nature, without sense or reason.

CHAPTER XV.

The Interior and Appreciative Senses, the Imagination, Memory, and Instinct.

In every human being, and in the nobler animals, there is one common centre or one single faculty where the knowledge and images acquired by the five senses are received and compared. That is the interior or common sense. It is called the common sense, not in the usual meaning of the word, but because it is the centre of and common to all the senses. We know that we can compare one sensation with another, that we can weigh one impression or feeling with one we felt before. We can also appreciate the beauty of surrounding objects, the sweetness of musical tones, the taste and odors of things and compare them with themselves, and with a thousand other impressions made on us by surrounding objects. This could not take place if it were not for this one common faculty, the interior sense, in which all these impressions received by the five senses are received and compared one with another. The common sense is, therefore, the common reservoir into which all the impressions received by the five senses are emptied, held, and compared, one with another. We are not able to compare all sensations in a perfect way, as a sweet sound with a sweet object in the mouth. But we can compare sensations received by the same sense. Thus we can say whether one object is more beautiful than another seen before, or if one piece of music is as sweet and harmonious as another. These comparisons take place in the common or interior sense, wherein these impressions are received and preserved for future use. How, then, does sensation take place ? We will remark again that there is a regular rank and gradation of beings from the lowest to the highest, who is God. The lowest form is the primeval form of the mineral, the next is the substantial form of the vegetable, then the animal soul, then come the immortal soul of man, the angel, and lastly God. Those beings, in a higher rank, contain all the perfections of those beings below them, besides their own peculiar perfections.

Then when the animal perceives by any of its senses a mineral, a vegetable, or an animal, it rouses within itself the same perfections, that is, a form like to the thing it sees, a form of what it sees, and by its own power it forms an image in itself of what it sees. Thus the dog forms in its eye the image of any surrounding object, when it sees it, and that image is formed on the retina of the dog's eye. But it sees only the modes, and appearances, and accidents of material things. But these modes and accidents of material things belong to matter, while the dog is a living organism, in perfections far above the modes and accidents of matter. Therefore, by its own natural superiority to material things, having in its soul the perfections of the minerals, the plants, as well as of the animal, the living soul of the dog or man forms in its eye the images of what it sees. Thus, the images of surrounding things in the senses do not come from the objects outside the living creature, but these outside objects only excite the senses and the living soul, whether of animal or of man, which forms images in the senses. In this way sensation takes place. Thus we feel, taste, smell, hear, and see. As sight is the highest and most developed sense, so in the eye the image of the object is the clearest and best defined.

Sensation takes place only in highly organized bodies, as in animals and in man. In these organisms the living soul assumes the materials of which the body is composed, raises these materials up to a far higher degree of existence, and communicates to them its life. Thus, the living body must not be considered as separately composed of body and soul, but as one, having one form, the soul which lives, and which animates it and gives it life. Therefore, this organism has one interior or common sense, the fountain and source of all the senses, of all sensation of pleasure and of pain.

Its organ is evidently the whole nervous system, for each special sense is united by its special nerve to the brain, the central organ of the whole nervous system.

For that reason, to perceive the sensations of any of the five senses, each sense must be united with the brain by its own special nerves, so that, in their common centre, the impressions of the senses changed into sensation, may be received. Therefore, if we divide a nerve, or any of the special nerves of the senses, this particular sense ceases to convey its impressions to the brain, and through it to the common sense. If we cut the optic nerve behind the eye, we see an instantaneous flash of light, and we are then left in total dark-

ness, perhaps forever, as the connection between the eye and the sensorium, or brain, and with the whole nervous system, has been cut. St. Augustine calls this interior faculty, which is the root of the five senses, the interior sense, while St. Thomas calls it the common sense, because it is the source and root of the five senses. By this interior or common sense we can not only perceive, but also study the sensations we receive by the five senses. Thus, an animal can judge which piece of food is the most toothsome, or which is the sweetest, and it will leave one, and go to another, or leave an enemy and follow a friend. In order to do this and many other things we see them do every day, it is necessary that they have one single interior or common sense, wherein the knowledge received by the five senses is received and compared.

Besides, animals and men have a faculty wherein the sensitive impressions received by the five senses are preserved. This is the sensitive memory. Thus a dog will remember his master, a horse will remember the road home. Memory is especially developed in the nobler animals, and it is most perfect in man.

Some animals have from nature, or rather from nature's God, the faculty of instinctively knowing their enemies, without ever having experienced injury or danger from them. Thus the lamb will fly the first time it sees a wolf, and every animal by instinct know what is good for it or its race, and it shuns what is bad for it as an individual, or bad for its kind. Here we may say that the instinct of animals is wonderful. Bees always build their honey-comb with six sides and geometry tells us that in this way the same amount of wax will go the farthest, than in any other shape given the comb. Ants show great cunning and ingenuity in building their nests and rearing their young. Children, before the use of reason, take milk by sucking, without knowing anything about the pressure of the atmosphere which forces out the milk. Birds build nests, and sit on their eggs, without knowing the effects of heat on the embryo within. Insects provide nourishment for the young which they never see. Nature is full of the wonders of instinct. What is this instinct in dumb brute animals but the Mind of God, who laid down with Divine Wisdom the laws of these creatures? No one can say that they ever arrived at this knowledge by themselves. For they have only the five senses and cannot rise above the senses, which see only the modes and accidents of matter, no more than water can of

its own power rise above its level. We who as men are the most perfect animals, all know that with our reason it is hard to learn geometry, mathematics, and the laws according to which the universe was created. And with all the knowledge and experience of man since he was created, it is only lately that we have begun to understand the secrets of nature. The instinct, then, of animals shows us the wisdom of an infinitely Wise Mind, who laid down and still keeps in force the wise harmonious laws of nature. That Mind is God. The more we study nature, the more we are raised up to the perfection of him who is nature's God. It is a sad tale to tell of human nature, that some men, through ignorance, tend to deny giving unto God his glory and praise for all his surpassing wisdom, scattered with such a lavish hand on every side around us. Study nature, study science, and you will learn the boundless wisdom of God.

By the five senses, "the windows of the soul," the material world around us is seen. By the interior senses these impressions are compared. But by the memory these impressions are preserved and recalled again at will. We now rise to a higher faculty of the animal, the imagination or fancy, by which the impressions are reproduced in their true form, or by which many impressions or forms are grouped together in the most fantastic manner. Thus the imagination will show us material forms as they really exist, or as they are possible to exist. The object, then, of the imagination is the forms of material things really existing or possible, that is, which could exist. This faculty the higher animals evidently possess, for we hear the dog growl and bark in his sleep, and in our own repose we dream of the scenes of every-day life, or bring back again the most curious and fantastic scenes and images, either asleep or awake. In dreaming, then, the imagination works in animals. But in man, because the imagination is closely connected with the mind, the latter is always in action when we are awake and we often reason during our sleep.

The animal has also many other sentiments, as fear, anger, hope, &c., for they fight for food and for their mates, and the dog chasing the deer hopes to catch it. They also show shame and joy, as the dog will hang his head when scolded, or wag his tail when petted. They mourn at the absence of friends. They love to gather together in company with those of their own kind, and some animals herd in droves for mutual protection. Some choose a mate, the shadow of Christian wedlock, while in the most brutal ani-

mals there is no sign of this, only in the higher do we find it so. They love their own mates and their own little young ones, a shadow of the mutual love of husband and wife for themselves and for their own children. All this is but a dim shadow of the eternal love of Persons of the Trinity for each other.

The highest sentiment of the animal is called by St. Thomas the estimative sense. By this the animal chooses materials to build its nest, to provide for its young, &c. Here we have the first dim shadow of reason, which judges and accommodates means to an end. But it is evidently not reason, but the reason of God or instruction implanted in them for their own advantage. We see that birds will choose certain things with which to build their nests. A piece of cotton or silk will attract it, although it never saw silk or cotton before, and it instantly judges that these materials will be good for nest-building. They know their own young from those belonging to any other and often, while they mourn the loss of their own, they will let the young of others die before helping them.

By sensation, or through the five senses, the forms of outside images are brought into the creature which feels. Thus we see by an image of the object formed in the eye. In every sense, therefore, the image of the object we perceive is more or less perfectly impressed on the one who perceives it. Plato believed that the forms of exterior things passed from them into the one who receives the sensation. But that is untrue, because the things we see lose nothing because we see them. The sight of them does not change them. Some animals show the most surprising knowledge of coming storms, of changing weather and of seasons. While many species are made to live on the land, others find their habitat in water, in streams, lakes, and ocean. Animals are confined more or less to narrow zones and regions, while man alone can live on every part of the surface of the globe. Some animals sleep but little, while others, as the bear, insects, &c., sleep during the greater part of the winter. The squirrel, the bee, and others hoard up food for winter use, while animals, which require no food, never lay anything by. The birds know when the wintry storms are coming, and take to flight in time to reach the sunny plains of the smiling South. By watching the actions of certain animals, we can foretell the coming rain or storm. Any scientist will confess that each animal is perfect in its own way and that within their narrow limits they are far

wiser than man. This is instinct. It is the unbiassed utterance of their nature, given them by nature's God. Therefore God beforehand gave them these silent instincts, these wise forewarnings, by which they preserve themselves and their race. Instinct, then, is the voice of God, speaking through brute animals, warning them of danger, leading them towards good.

The Human Kingdom.

CHAPTER XVI.

The Difference between Man and Animals.

The investigations of science laid down in the foregoing chapters lead to the better understanding of the nature of man. Composed of body and soul, man is the completion of creation, the last and most wonderful handiwork of the Creator. In his soul, but in a higher and more eminent degree, are found the faculties of the substantial forms of the minerals, the growth, nutrition, and reproduction of the plant, the sensibility, the five senses, the imagination, the memory, &c., of the animal, and as the supreme and highest faculty of all creatures, he has reason, by which he enters into union and association with a new and more sublime series of beings—the intellectual, at the head of whom is God, the supreme and infinite, uncreated Intellect.

Man lives, moves and has his being, and all these activities come from the intellectual soul, which animates and gives life to his body. This soul in man is one. By its divine faculties and powers it exerts its operations and acts both in the body and in itself.

We have traced the operations of the mineral, vegetable, and animal forms or active principles, and we find that as we rise towards man that these active principles become more and more perfect, and the number of faculties of the various forms increase as we rise in the scale of creation. It is thus because God, in making creatures, gradually prepared for the creation of man, for he was to have within himself the perfections of all earthly creatures below him. The mineral is of the earth earthly. The plant is partly of the earth, and its

roots, like so many mouths, are imbedded in the soil. The animal is prone on the ground on which it lives. But man is upright. He holds his head erect to look out upon the world, his kingdom. His nobility, his superiority over the world thus appears from his upright and noble figure. His commanding eye and face awes all beasts, even the most ferocious animals, and instinctively, when not in a rage, they acknowledge our superiority over them. We can tame and subdue the most powerful and the most ferocious animals. In this, then, we differ from them, that we are above them and superior to them.

The vegetable lives on the mineral. The animal lives on the vegetable. In man his reason draws from, and makes universal the sensations and the knowledge furnished by the five senses and the sensitive part of man. Thus in man sensibility is for reason, to use and to draw from. The animal part of man, then, is for the mind, the noblest and highest faculty. The highest faculty of the animal is the imagination, and the mind in man seizes the images furnished by the imagination and makes them universal. Then all in man is for the use of reason, his highest faculty. All in him, then, was made for the use of reason, while in the animal, or in the vegetable, or in the mineral, their faculties do not tend towards any higher end than themselves. For that reason, one faculty, as one or more of the five senses, will be found highly developed in the animal or vegetable, to the weakness or loss of the other powers or senses. As in man all tend to the perfection of reason, we are not surprised to find that the human skeleton is more perfectly made than that of any animal. Thus we can bend our limbs farther and better than the most perfect beast. No animal has such delicate organs as the fingers. The skin of animals is tough and coarse, compared to the skin covering our bodies. When we examine the muscular tissues of the human body, we find the cells smaller, the tendons stronger, the muscles more compact, supple and yielding, and the whole human structure possesses a much finer quality.

The nervous system, the seat of the animal sensibility, is more developed in man than in any animal. Therefore, pain in us is more intense than in the animals. Insects can lose their heads without much pain. Some animals can suffer their limbs to be cut off and grow another without great inconvenience, because their structure is coarse and incomplete compared to the human body. The brain in man, the organ of the imagination, is much larger in proportion to

the size of the body, than in any other creature. Reason does not depend on the size of the brain, for we see quite stupid animals, as the whale and others, with a larger brain than man, and still they have not reason. The structure of the human brain, compared with the brain of the most highly developed animals, is finer, more complicated, has deeper convolutions, larger hemispheres, and a far more highly constructed organism than any animal.

In man, then, the mineral, vegetable, animal, and reasonable natures are united. He forms the link between the animal, which dwells amid the singular and the individual things of this visible world, and the reasonable, which lives amid the universal, the general and the spiritual things of the unseen world of spirits. We are not, then, surprised to see that the human soul, which is more perfect than the animal or vegetable souls, builds up a more beautiful body and a more perfect structure. Thus no animal has the shapeliness, the grace, and the beauty of man. Horses, birds, and animals are beautiful in shape and color, but they never show that grace of movement, that beauty of form, and that majesty of face and dignified pose we see in man. Beauty is especially in woman, the last creature God made.

No animal is capable of art, commerce, or industry. Art is the application of principles found in nature to a particular work. Thus the sculptor and the painter seizes the beauties of creatures and reproduces their outlines. The musician reproduces the sweetness and harmony of music. Commerce is the interchanging of the commodities useful for human society, industry is the using of the forces of nature and turning them to man's benefit. No animal does this. It is true that we see the shadows of these in the nests of birds and of animals, and in the wonderful ways they provide for themselves and for their young. But they do this by a blind impulse coming from nature's God, and we call it instinct, for they are guided by the mind of God. No animals form a government with laws. They sometimes live in communities, as bees, beavers, ants, &c. But they do not do so freely, but by a blind instinct of their nature, which comes from God. But man is a family animal. Man and woman marry, and form a family. A large number of families unite and form a commonwealth or nation for mutual protection. But man does all this freely and in doing so he is the master of his own acts.

Man is the only animal who can speak. It is true that animals utter sounds, as the hen will call her chickens, the

dog bark, the birds sing, &c. But these sounds mean only the single and the individual thing, and they never signify the abstract and the universal ideas, like the words of any human speech. The mind penetrates beyond the accidents, appearances, and modes of matter, and seizes the abstract principles, causes reasons and substances of things. The words of any language, of no matter what nation, is the expression of these ideas of the human mind, and these ideas are universal and abstract, while the noise of animals only express their particular and concrete emotions. Every people has its language, which is the means by which they mutually convey one to each other their ideas and thoughts. As these ideas are of every kind and degree, so we may expect that man has a more perfect voice than any animal. This we find to be true.

The voice in man is caused by the vibrations of air passing through the vocal chords. These are composed of two chords, situated in the larynx, through which the air passes in entering the lungs. The organ of the voice itself is larger in man than in woman, and this makes his voice low and bass. This organ can often be noticed under the chin. It is sometimes called "Adam's apple." The vocal chords are two nearly parallel bands of extremely elastic tissue, the outward ends of which are attached side by side to the inner surface of the thyroid cartilage, while their after ends are united to the points of the arytenoid cartilage. By this arrangement the forward parts are fixed, while the after portions are capable of being separated or brought together, according to the movements of the arytenoid cartilages. In this way the opening between the chords may be greatly enlarged, or brought to a narrow, almost linear slit. The air, by the lungs, being forced out through this slit, sets them in vibration and gives rise to musical tones, low when the slit is large and high when it is small. The human voice, then, by its very nature is a musical tone. A vibrating string, as in the violin, or a vibrating column of air, as in the pipe organ, have beauties differing one from the other. But the human voice is caused not only by the vibrations of the vocal chords, but also by the vibrations of the columns of air in the air passages of the lungs, throat, nostrils and mouth. The human voice, therefore, partaking of the beauty of both the chords and the pipe, is the most perfect musical instrument ever constructed. Nothing thus far seems to compare with it, except the organ. But this, in order to be perfect, should have twenty-four notes in place

of twelve in each octave, which is found impracticable. Even then the notes of the organ would rise or fall by steps from one note to another, while the human voice can rise or fall gradually, and thus give rise to the most varied shades and colors of meaning to the words which express our thoughts. We see the beauties of the human voice in the combination and blending of the four voices, the bass and tenor, alto and soprano, in our church choirs. Thus we see how God knew music in forming the human voice, long before our ancestors knew a note of music.

Another difference between animals and man is that, although man has all the animal and plant and mineral functions developed in him in a higher degree than in these creatures below him, still he has also two other powers in his soul, which no animal has. They are mind and free-will. By mind and free-will man resembles the angel and especially by these was man made to the image and likeness of God. While the mineral kingdom is ruled by unchanging laws, the vegetable has the shadow of liberty and free-will, the animal is still more free in his animal actions. But man is free to choose his ends, his objects, and the means to attain his ends. Therefore the mineral kingdom acts always with the certainty of fate, and nothing but the direct act of God, or a miracle, can change these laws ruling the actions of the minerals. The plant can be trained a little and bent somewhat out of its course. The animal can be taught and harnessed for man's use and benefit. But these creatures are ruled by the changeless laws of God, while man is free and the chooser of his own destiny, both in this world and in the other. He can choose because he has liberty and free-will.

It follows, therefore, from the nature of liberty and free-will that man can go on perfecting himself. This we find to be true. While the minerals, plants and animals come into this world more or less perfect, while all through their existence and their life they have the mind of God directing them, through changeless laws which we call their instincts, we find that man comes into this world guided by these laws in as far as he is a mineral, directed by the laws of plant life in as much as he is a vegetable, impelled forward by instinct in as much as he is an animal, yet his mind is a blank and he knows nothing at birth.

Therefore of all animals man must be educated, and without education he is but little above the beast. Usually education, in our schools and universities, mean the training of

the one faculty, the mind, and the course of studies, as a general rule, tend only to that one end, to train the mind. But the word education, from the two Latin words from which it is derived, means to lead out, to train, to develop. Education, in its true sense, means the training of every faculty and power in man. It should therefore perfect the man in every way and train every faculty of soul and body in him. If we educate one part of man and not the whole man, it will be to his injury and not to his gain. Thus the good penman may turn out a forger, the good mechanic a bank breaker, the good business man a swindler.

In our schools the mind is trained alone and not the heart, and therefore the tendency is towards infidelity. Education should especially train the will to resist all kinds of temptations. The will controls all the man and should be trained to guide the animal and vegetable passions in the right direction and according to reason. That is the true education which teaches man to attain his final end, the possession of God, towards which every instinct of man tends, and without which all is eternal loss.

We see, therefore, that man is the only animal capable of education. Man alone comes into this world the weakest and most imperfect animal, but by education he can soon surpass the greatest and strongest of animals. All this shows that there is something higher and better than the animal functions in man. While the other animals are content with enough food, and rest their happiness in this world when well provided for, man here below is never satisfied. He is always pushing onward and higher. Some place happiness in money, but never have enough; others gratify their passions and are soon satiated. But this world and all in it can never satisfy the cravings of the human heart. By his very nature and by an instinct of his very being, man seeks something higher than this world and that can never be found in this life. As this is in man's nature, and as nature cannot lie, there must be something higher in which the human soul can rest. That is God.

This peculiar instinct for something higher we never see in any animal, for they have no mind or free-will. The mind then, ever seeks the truth, and the will ever seeks the good. The possession of the good is happiness. But the mind, never knows enough, and the will is never satisfied with what happiness it has. In this the capacity of the mind of the free-will is infinite. They will be satisfied and satiated only when the mind possesses the infinite Truth, who is

the Son of God, and when the will possesses the infinite Good who is the Holy Spirit. The right education of man, then, only tends towards God, the final end of all created intellects and free-wills, both of man and of angels.

Man is the only sociable animal. It is true that animals will sometimes live in a certain kind of community, but they have no form of government which they organized themselves. This way of living was laid down for them by the Creator. But man always has some form of government, either the paternal, where the father rules, the patriarchal, where the most venerable governs, the tribal, presided over by a chief, the regal, ruled by a king or emperor, the oligarchical, ruled by the aristocrasy, or the democratic, ruled by the people and for the people. In all forms of government, God gives them the right to make and enforce law and order, and even to take life. Therefore the officer of the government, who takes the life of a malefactor, does it in the name of the government, who received that from God. And by the authority of God it is done, for he alone has authority over life and death, for he is the only Author of life, and can take it when he sees fit. Therefore rulers rule their subjects in the name of God. We see nothing like this among animals. They establish no government properly called, and if they live together in flocks and crowds, they do so by instinct and they are ruled by brute force.

The highest faculty of the animal is the imagination, by which the appearances and accidents received by the five senses are reproduced, changed and thus brought before them again. Thus, the five senses seizes the forms, accidents, and modes of bodies, as they really exist, while the imagination reproduces these as they really exist or can exist, that is, the actual and the possible modes of existence of material substances. The five senses, therefore, which belong to man and animals, see only the modes or appearances of matter. Thus the eye sees the shape, size, color, and structure of material things, the ear hears the sounds emitted by substances, and thus with all the senses. But the senses can never penetrate behind these modes or accidents. That properly belongs to the mind. Thus the senses see the accidents, but the mind penetrates behind these modes or accidents and judges that under such appearances, such color, such shape is bread, gold, iron, &c., according to the shape, color, appearance, weight, &c., of the object. Then the object of the animal senses is the appearances or modes of matter, while the mind grasps the substances which is beyond the senses.

We can now explain more clearly that in Communion in the Christian religion the senses see the appearances or accidents or modes of bread and this is all the five senses, which our animal faculties can see. But the Word of Christ, who is God and cannot deceive, as well as pious tradition of all churches, tells us that it is not bread, but the body of Christ. The mind, well instructed, penetrates beyond and behind what the senses see, and judges that the substance of bread, which like all substances is invisible to the senses, the mind judges that this substance of bread has changed into the substance of the body of Christ, while the accidents or modes, that is, color, taste, shape, appearances, &c., have remained. It is then simply the changing of one substance into another as the bread we eat is, by digestion, changed into the substance of our body, but slowly and according to the laws of nature, while the change from the substance of bread into the substance of the body of Christ takes place suddenly and by a miracle. His incarnation and birth were miracles. His life was a series of stupendous miracles, and here, in Communion, he continues, as it were, that incarnation, so as to unite to each of his followers. In this case the senses are not deceived, for the appearances or accidents of the bread and wine, which acted on the senses before, still act on them now. Christ hides himself under the appearances of bread and wine, because these have ever been the chief food and drink of mankind. As we could not eat living flesh and drink the blood of a man, so he hides himself under the accidents of our chief kinds of nourishment, bread and wine.

Substances, then, are entirely invisible to the five senses. The body of Christ, after the resurrection, became invisible, impassible, intangible. When he rose from the tomb he passed through the solid rock. He passed through the walls when he appeared to his disciples. His body now is invisible, a spiritualized body, which can be, like a spirit, in one or many places at the same time, as the words I preach may enter one or a thousand ears, whole and entire, penetrating to the mind of every one who hears me. Thus the body of Christ enters whole and entire into as many as receive Communion. But where Christ's body is, there is his soul, for the separation of soul and body is death, and he died once and can die no more. Where the body and soul of Christ is, there is his Divinity, for from the time that he united himself to human nature, and placed the Second Person of the Trinity in place of the human person in Christ, from that instant the human nature of Christ cannot be separated

from the Divine nature. Therefore, he who receives Communion, receives whole and entire Christ, both God and man. Therefore those who argue against the real presence of Christ in Communion act on the evidence they receive from the senses, and they do not rise above the animal powers of man, while it is eminently reasonable to use the mind, and judge not from the appearances, like an animal, but from the words of Christ, like a Christian.

Man is, therefore, a plant and an animal, as well as a human being. But he is the highest and most perfect plant and animal. Considering his body alone, he belongs to that class of animals called the mammals. When we study the body of man, we find in it all the traits and characteristics of the animal. Therefore those writers who do not rise above the animal kingdom in studying man, incline to call him only an animal. From that rose that peculiar doctrine of Lamarck and of Darwin, the theory of evolution. They claim that by natural selection the lower forms of life developed themselves, till they evolved the perfect animal, man. The first expounders of this doctrine claimed that God thus created the first man, while their followers leave out God entirely from the plan of creation. In the first place our bodies are built up and organized without our knowledge and free-will. The first part of our lives before our birth is a continual sleep, and afterward, we must sleep to let our nervous system rest, and restore the loss of energy spent during the time of wakefulness.

It is evident, then, that some other power than ourselves presided over our growth. It certainly could not be our mother's mind, for she is unconscious of the daily and hourly growth and development of her child. It could not be nature, for that is blind and cannot rise above itself. Who was it, then, but God, who presides over the wonderful works of nature. God creates the human soul at the moment of conception. When the soul is created it is as perfect and as complete as when the man attains his full strength and vigor. Thus the members, organs, and senses of the body are like so many instruments of the body, through which the soul works. But when they are cut off or destroyed the soul is not cut, for it is spiritual, incorporal and has no parts, for all these belong to the material body, for it is composed of matter and of parts, which do not belong to the spiritual soul. Men become materialists and atheists because they cannot rise above their senses. They are, then, like so many animals, for they do not use their reason, they do not think deeply and penetrate far into the nature of things.

At the moment the soul is created it begins to form the body it is to animate. It begins at the lowest limit of life, the cell. It adds cell to cell, exercises only plant life at first, and swims in water like a fish. Soon the little germ divides into two parts, one for the vegetative functions in the chest and abdomen, the other for the animal powers in the brain, spinal cord, and nervous systems. Everything goes on according to law and order. It builds no useless parts. Gradually it takes in from the mother's blood the materials it wants, and assimilates them into its own organism. As organ after organ develops and becomes stronger, the soul begins to exercise its higher functions. First appears the vegetative functions, then the animal powers begin their role. We are not, then, surprised to find that in the different stages of his life before birth, the child shows many traits of a vegetable or of an animal, because he lives before birth a purely vegetable and animal life. This unfortunately leads some scientific men to believe that man developed from the vegetable and animal forms of the early life upon this planet. The fetus grows larger and larger as the time of birth approaches. First feeling, the lowest sense, is developed, then taste, &c., till at birth all the animal and vegetable organs are formed. For some years the child lives a purely animal life. Taste is exceedingly developed, for it wants much food to supply what is wanted for bodily growth.

During their first years children are guided by instinct, like animals. Thus the little child puts everything into its mouth. We, too, during our whole lives, like animals are guided by instinct in many of our actions. As the nervous, muscular, and bony systems of the child develop, the senses and imagination become stronger, till towards the sixth or seventh year reason dawns dimly upon them.

Reason develops slowly and gradually in childhood, because the nervous system, from where the imagination draws its images, is imperfect and can furnish but imperfect images, or it is so lively that it obscures the mind. For this reason the child is more guided by animal instincts than by the light of reason, which is dim at first. Gradually, as the nervous system develops, the reasoning faculties increase year by year, till at full growth it is strong. The mind, using the forms offered by the imagination, becomes stronger and more powerful as we advance in age, till after middle life it is the most powerful. Still, if good health and strength continues, in advanced life the mind retains its power. But if the organism weakens, we fall into a state

of second childhood, not because the mind in itself is weakened, but because the organism of the nervous system, which it uses as an instrument, has become enfeebled by the infirmities of old age.

At the age of seven reason dawns ; at fourteen the reproductive faculties develop, at twenty-one growth is attained ; at twenty-eight the bodily strength is in its full vigor ; at thirty-five the mind becomes powerful ; at forty-two the organism is heaviest ; at forty-nine the body begins to grow smaller and smaller, till it ends in death. These rules may have certain exceptions, but they are true for most people. Thus reason, which distinguishes man from animals, depends on the animal functions, as these depend on the vegetable and as the latter depend on the mineral. Then the light of reason comes after the body is more or less developed and perfected, and when the body becomes weakened, reason is weakened, because the latter draws its conceptions from the imagination, a purely animal faculty. Therefore full bodily strength and health is required for right reason. Then, when the animal functions are disturbed by disease, old age, or other causes, the instrument of reason is injured, and reason is disturbed.

Therefore a person raves in sickness, a drunken man talks and acts foolishly, and the minds of old people, as well as of children, are weak. When we sleep the nervous system is at rest, the mind receives no forms from the imagination and deep sleep to us is a blank. But when in sleep from any cause the nervous system is disturbed, the imagination is at work and we dream. When sickness is severe, the nervous system is injured, or is in sympathy with the rest of the body, so that we lose the use of the five senses and of the imagination, which depends on the nerves. Then only the vegetative faculties are at work, and we are totally unconscious. If the sickness or injury be so severe as to stop also the vegetative functions, as breathing, the beating of the heart, &c., the organism receives no nourishment, the blood cannot flow to repair the loss continually going on in the body, and we die, because the body then becomes unfit for a residence for the soul. Thus life develops slowly and gradually, till reason, the highest faculty of man, is attained, and at death reason first goes, then the senses or animal functions in the inverse way these were developed, till, when the vegetative functions cease, death comes quickly.

From what has been said, the reader will easily see that the fundamental difference between man and animal is rea-

son, that man, besides the animal functions, has also mind and will. These two are the reasonable parts of man. In fact, the whole organism of man is for reason, and all the powers, both of body and of soul, tend to the perfection of his reason. We will therefore treat of the mind in the following chapter.

CHAPTER XVII.

The Mind.

We now come to the mind, the highest and noblest faculty of man. The object, we must repeat, of the living principle of the plant is the organism of the plant. The object of the senses in the animal is the actual visible world around. The object of the imagination is the actual or possible images of material things. But the object of the mind is the universal or the general. By the eyes I see one dog, and the imagination forms in me the image of one dog. But the mind seizes that image in the imagination, abstracts from it all the general qualities of the dog tribe, and immediately I have in my mind the general and universal idea of a dog or the species of the animal called dog. Again I look and see something moving towards me. This gives rise to a vague, abstract, universal idea of something in general, whether a cow, horse, man, or what I do not know. This is a general or universal idea. It comes nearer and I say it is a man. But here the idea of a man in my mind is a very vague, general, and abstract idea. It comes nearer and I see it is my friend Charles. Then only does the idea become concrete or one or individualized in my mind. The first impression or idea was abstract, the last concrete.

Thus the direct object of the mind is the abstract truth, and the secondary object is the singular, while that of the senses is always the concrete, or individual object. Thus, the words of this book are signs of abstract, general, and universal ideas in my mind and whoever reads these words by the mind brings forth the general abstract ideas in my mind represented by these words. Thus the letter A signifies that idea, that sound, wherever found, and so of all other letters, words, and sentences, in all languages spoken by man. But you cannot teach a dog, or any animal, that such a letter, wherever found, signifies such a sound, for they have no mind. Their powers stop at the imagination and they cannot abstract the universal and general qualities from the single, concrete, individual things, as man does, and consider

these qualities as at the same time belonging to a large number of individuals resembling each other. It is true that with the mind we can also see the particular, but that is only by and after reflection. When I see a white wall I think instantly of whiteness, which belongs to all white things, and in an instant afterwards, I think of this single concrete white wall. My first thought was an abstract and a universal thought or a general idea of whiteness, but my second idea was a particular, single thought of this particular wall. The mind, then, first grasps the universal and then the particular.

In the eye, the highest of the five senses, we see by the aid of an image formed on the retina. In the imagination we see by the images of material things, and in the mind we see by a mental image. That mental image is the thought or idea of the mind. The image in the senses is only the material representation of that which really exists in nature. The images in the imagination represent not only those objects which exist outside and in nature, but also many possible things which could have existed under material forms, if God had created them. But these images in the imagination do not rise above the material qualities of the mineral kingdom, for the imagination uses the nervous system as its tool or instrument, especially the brain, which is partly material and partly spiritual, that is, it belongs to the organism composed of both the material body and the spiritual soul. But the images in the mind are entirely general, universal, immaterial, and spiritual, like the mind, which brings them forth. For the mind does not use any corporal organ in thought. For all material things have parts, extension, and the other physical qualities of bodies. But we find nothing like this in thought. For we cannot suppose a part or one-half of a thought, nor that a thought has length, breadth, or thickness. Therefore, an idea or thought is something spiritual and without extension. Thought itself, being simple and spiritual, the subject in which it exists must also be simple and without extension, or simple and indivisible, like itself.

The image or idea in the mind is the thought of the mind. That is, it is a spiritual representation of the thing we think about. It is also called the mental word. When we think, mental words, or thoughts, or ideas, come forth in the mind. In this way we talk to ourselves. The mind, then, is ever, during wakefulness, bringing forth ideas, mental words, or thoughts. To do this requires the imagination,

and the imagination itself uses the nervous system, especially the brain, as an instrument. For that reason, when we think deeply, the brain and nerves soon tire out. But the mind itself never tires, for a tired feeling comes from the use of our material body organism. But a spirit never tires, for it has no material organs and the mind is entirely spiritual. When we think of a thing there is a spiritual representation of the thing formed in the mind. That mental word represents the thing as it is and the nearer and clearer the mental word is like the thing it represents, the clearer will be our thoughts or ideas. The mind can bring forth mental words or images of all things below it, for our minds contain, in an eminent or higher degree, all the perfections of the creatures below us. But the mind of man or of angel, being a creature and therefore imperfect, cannot bring forth another creature or word exactly like the thing of which we think. That belongs only to the Supreme Mind, God.

God seeing himself from eternity, thought of himself and that thought in his mind is the mental Word, like unto the idea in our mind. The Word then represents God as he is. But in God nothing can be imperfect and therefore the Word of God must be perfect in every way, infinite, eternal, and represent the Father exactly as he is in every degree. That Word is the Image of the Father. That Word is the Son, the second person of the Trinity. Thus the Father is ever bringing forth the Son from his eternal mind and each created mind of man or of angel, in bringing forth mental words or thoughts, is but a figure of the increated mind of God the Father bringing forth the Son. Each thought, therefore, of our mind is an image of the Son, the thought of the Father.

The mind is the highest faculty of man and to exercise and use the mind ennobles and elevates him and therefore it does not hurt a man to use his mind. But when we turn to creatures below us, either to the vegetative or to the animal powers within us, or to the creatures around us and below us, we degrade and debase ourselves and become like beasts, for we turn to our beastly passions and turn away from our last end above us, who is God. For man was made not for the things below him but for the things above him. Man was made for God, who is above and whom he is to imitate all his life. Therefore creatures below man were made for man. We find, then, that the perfections of creatures below us end with this world, and they know nothing of any

higher state. But man was made for the possession of God. His mind ever seeks the pure spiritual truth, which is God the Son, and his free-will ever seeks the everlasting good or happiness, which is God the Holy Ghost. Then no one is satisfied with the things of this world, but we are ever seeking something better, something higher.

By his very nature, therefore, man tends towards his Creator. Reason tells us that we must worship him who gave us being, and brought us forth from nothing. This is the religious sense.

The word religion comes from two Latin words, and means the duties of man towards God. Every nation, tribe, and people, in all ages of the world, have professed some kind of a religion, and worshipped a power superior to themselves. The religious sense being found in all men, shows that it comes from the nature itself of man, and therefore it must be true, for the nature of a thing coming from God can never deceive, for God is Truth. We pass by those who deny God, and believe not in religion, because they are like some monstrosities of nature, who come into the world injured and diseased. Each law has some exceptions, and they are the exceptions to the general law that God impressed his own perfections on creation, that any one who uses his mind, and studies the perfections of nature, must rise to the knowledge of the Creator, whose beauty, truth, and goodness he sees reflected from creatures as from a mirror.

We find, then, that the human mind differs from the animal faculties, whether we consider the object of the mind, that is, truth, or the mind itself, as the highest faculty of the soul. The object of the mind is truth, in the abstract. It is true that through the senses the animal obtains a knowledge of the truth of the visible and material world around us, but that is truth in the singular, in the concrete, for the senses see only one thing at a time. For as the senses are single, concrete, and physical organs, they cannot rise above their nature, which is the singular. The mind sees truth in the abstract. By its innate activity and power the mind abstracts the universal from the singular, and thus brings forth these abstract, universal qualities common to many at the same time. Therefore, abstract, universal truth, which is the direct object of the mind, is a higher and more perfect truth, than the concrete physical truth in the mineral, the direct object of the five senses.

If we consider the mind subjectically, that is, in its own nature, we find it superior to any animal power. No creature

can rise alone above its nature. And if the mind can see the universal, the abstract, and the spiritual truth, it also must be spiritual.

The mind, then, is spiritual. It turns inwards and contemplates it own action, which the five senses cannot do. The senses of the animal sees their objects, as existing here and now as surrounded by time, place and circumstances, as subject to the mutations of temporal things. But the mind abstracts truth from its surroundings, makes it universal, raises it up to the serene sphere of intellectual peace and there contemplates truth, as its abstract, spiritual object. For that reason we study best when in peace and quietness, separate from the changes of material things. The mind, then, is a purely spiritual faculty, which is independent of the material body in man. It does not use any corporal organ in producing its acts. It draws the phantoms or images from the imagination, and by its own spiritual force and power, it makes them, like itself, spiritual, universal, and independent of the changes and mutations of material things.

On the contrary, the animal faculties are partly spiritual and partly material. The organism or body of animal or of man is not purely spiritual, or purely material, but composed of both matter and spirit united in one compound. The soul is the substantial form of the body, and all activities take their rise in the soul as from their source, as all mineral actions come from the activity of the substantial form of the mineral. Thus in man his vegetative and animal actions are caused by his soul, which uses its faculties and the organs of the body, as so many instruments to produce its effects.

It is evident, to any one who stops to think, that the mind is above and superior to the vegetative and animal faculties in man. We all know the continual battle going on in us between mind and passion, between the soul and body, between the animal and the spiritual, and we realize that the mind is the master. Passion may for a time overcome us, but soon the mind will assert its mastery. The mind, then, is spiritual, judging both from its object, which is spiritual or universal truth, from its nature, which is simple and without parts, and from its control of the animal powers within us.

Plato thought that the soul brought some of the ideas it has here from another planet we inhabited before we came upon this earth. He taught that the mind seized the forms

of the surrounding objects and saw all things by them. But we know that the soul was created whole and entire at the moment of conception, that the mind abstracts its conceptions from the forms of the imagination, and that these forms of things are furnished to the imagination by the five senses. We also know that the mind does not take in the forms of surrounding objects, but that the mind brings forth these mental ideas or reasons of things, because it possesses in a more eminent degree the perfections of all creatures below it, as God possesses the reason of all things. By this the mind brings forth intellectual images of other things in thought.

Melbranche taught that we see all things in God. But that is not true. For we see things as they really exist in nature, and from the study of nature we rise to the contemplation of nature's God.

Language expresses our ideas, and each word means a thought in the human mind. Therefore, words are more than empty sounds. They are external expressions of internal ideas existing in our minds. These ideas were from the beginning of the human race, and they are unchangeable, while language changes from age to age, and from nation to nation. Language is of two kinds, natural and acquired. Natural language is that which is founded in nature and does not change. Thus a scream or moan of pain is understood by all men. An acquired language is that which we learn. It is composed of words which signify our ideas.

When we speak one to another we express to him by our words the ideas in our minds. These words cause the same ideas to arise and spring forth in the mind of the one who hears us. It being natural for man to bring forth ideas in his mind, it is evident that language follows his ideas, as man was made to live, not alone, but in company with his fellow-man. The mind, being the highest faculty in man, by its very nature it is active, even in wakefulness, bringing forth thoughts or ideas, all representing the mind of God generating his divine Son. Then language follows naturally from ideas, and therefore is natural to man. If two persons, then, are brought up alone from their infancy, and never heard a spoken word from any other person, they will come to make a language of their own, because they must have some way of manifesting their ideas one to the other.

It is natural for the mind to bring forth its mental children, that is, the ideas or the reasons of things. When the

reasons of things are expressed by spoken words, if the ideas are right according to the nature of the thing, as in the mind of God, the mind of the one who listens rests contented and is satisfied. But if the idea expressed by these words is not correct, or is a deformity which does not hurt us, the idea excites mirth and laughter. That is humor. But when the idea expresses an exaggeration, which is not found in the nature of things, it excites greater humor and laughter in us. That is wit. Thus wit and humor may be caused not only by monstrosities in material things, and by what is ill-shapened and grotesque, but also by mental images or ideas in the mind, which are deformed and not made according to the idea in the divine mind, or in agreement with the ideas or reasons of thing in our own minds. These things, whether really existing as deformed things in nature, or as distorted images in our minds, when they cause us no pain, excite in us the idea of the ridiculous.

The human mind, therefore, is made to the image and likeness of the mind of God. The mind of God from eternity brought forth an idea. That idea was the Son, the mental Word of the mind of the Father. That idea had within it all the perfections, the plans, the shapes, the races, the species, in a word, all we find in creatures, but in an infinite and universal way. Creation, then, was but the external expression of the beauties of the divine Word, or Idea of God. There, in the bosom of God, from eternity, lay the Word the Son, and in him are found the universal, general, infinite, the plans, and models, and types of all creatures. In thinking the human mind brings forth the universal ideas of creatures, and therefore in a feeble way the human mind brings forth the Son.

Descartes and Leibnitz say that God, in creating the human mind, gave it all these universal and general Ideas which from eternity dwell within himself, while Melbranche says that these ideas are not engraved in the mind by the hand of God, but that we see all things in God as a mirror. For as these reasons of things, these eternal types of creatures existed in the divine mind from eternity, so we see them in God. On the contrary Locke, following the teaching of Democrates and Epicurus, says that all ideas come to us from the senses. That there is nothing in the mind which was not once in the senses. Such are the three theories of the origin of ideas. They are followed especially by modern scientific writers. But they are all wrong, contrary to common sense, to religion and to the nature of the

mind. We will explain in the following pages the true way the mind acts in seizing truth and in understanding and bringing forth its ideas. And at the same time we will show that the mind in action is an image of the Father bringing forth his own Idea, which is his divine Son.

The surrounding world offers us only single and particular things. Each being of the visible world is one, concrete and singular in itself. But the five senses see many qualities belonging to many things at the same time. The mind grasping these single things, that is, the single qualities of sensible objects offered by the senses, the mind abstracts from these many things one universal and general quality, property or perfection. That is a universal idea. Thus from the sight of one man we rise to the universal idea of humanity, which is human nature in general. Therefore there are two kinds of knowledge acquired by men, the sensible and the mental. The sensible is the particular and it is the object of the senses, while the mental is the universal and it is the object of the mind. The senses seizes the sensible images of visible things, but the mind seizes the reasons of things. In these two ways man obtains knowledge. The five senses seize material images, because the organs of sense are formed of matter and spirit, for they belong to the organism, that is, to both soul and body. The mind seizes the intellectual images of things, because it is a purely spiritual faculty and as the spiritual is above the material, so the mind brings forth spiritual ideas or images of all things below it in nature.

First, therefore, the reasons, the patterns, the plans of creatures, the models according to which they were created existed from eternity in the mind of God. These are the Idea in the mind of God. These reasons and plans are the Son, according to which all things were made. Therefore, all creation is but a natural revelation of the beauties and the perfection of the Son of God. By the five senses we grasp the images of these same perfections in creatures, and by the mind we seize these perfections, these material images, these beauties, and from the particulars in nature thus we make them universal. The senses perceive the qualities, modes and accidents of things, while the mind penetrates within, and sees the substances, natures, essences, and reasons of things. The senses sees only the singular, here, present in time, and at a convenient distance, while the mind sees the universal, abstracts it from the particular thing in which the senses formed it and makes it independent, and above

the changes of time, place, distance, and material modes and accidents.

But only the form of a thing acts. For by the form a thing is what it is. By the substantial form, therefore, surrounding things act on the senses. For nothing material can enter the senses. The senses, seeing things, spiritualizes them, as the mind thinking, universalizes and generalizes its ideas. Each of the five senses brings forth the images of the things it perceives. This is especially seen in the eye, which sees by the image on the retina. The mind sees by bringing forth ideas, that is, universal images of what we think. The mind and the senses can bring forth these ideas and these images, because the soul contains all the perfections of the creatures below us.

The five senses perceiving surrounding objects as one, single, and concrete, form images of them as they exist here and now acting on the senses. The senses give these images to the common sense in us. Then the imagination seizes these images, reforms them, reproduces them, or, again by memory brings them forth again, even when the material objects are absent, or far away. Thus the imagination is a more perfect power or faculty than any of the senses, for the latter can perceive only what is present, while the imagination grasps not only the images of present things, but also the forms of those which are absent. From the forms of things which it has seen, it can also re-form, or reproduce the images of things which never existed. The mind seizes these forms or images in the imagination, and abstracting from and raising them above all material and physical qualities, as time, place, shape, &c., the mind makes these universal, spiritual, abstract, and above all the mutations of material things. These are the ideas or reasons of things in our minds. Creatures were made according to the universal idea in the mind of God. Each single, concrete being was, therefore, made after the model of the divine Son. The human mind, seeing each single, concrete creature around us, brings forth a universal idea for each creature, and that represents the nature of each creature, and those ideas, or spiritual images of material things in our minds resemble the Son in the mind of the Father, for all nature was made after the Son, who is the plan of all things.

The mind and free-will of man form the purely spiritual part of man, and by the mind we bring forth pure spiritual truth. But another and inferior part of the soul animates, is particularized and, as it were, buried in a particular part

of matter, that is, the human body. By this part of man, and through the senses, he sees the particular, concrete, and single things around us. The mind and free-will being above and independent of matter, exist their acts independently of, and above matter. The other, the plant and animal, or sensitive part of the soul, is in matter and exercises its acts by material organs, by using the physical, mechanical, and chemical forces of matter. Such are the vegetative and animal parts of man, through which he animates his body. Therefore, as the physical objects reflect their physical qualities to the senses, as the senses furnish the imagination with its images, and as the imagination abstracts their quasi-spiritual qualities, so the mind draws these images from the imagination, and makes them still more abstract, and still more universal, so without the senses, and without the imagination in this life, the mind cannot work, or bring forth any of its ideas. As the senses and the imagination use the nervous system, and especially the brain, as their organs, so we find that any injury to the nervous system renders a person at once senseless and unconscience, all the time that the nerves do not act. During all this time the mind is a blank. Thus it is in sickness, or in a serious injury to the nerves. In the same way in deep sleep, when the nerves rest, we know nothing.

When I see a horse my senses show me only the external accidents, modes or qualities of the horse; I see only this one horse. But in an instant these qualities are reproduced in the common sense, then in the imagination, then the mind seizes them, abstracts from the image all the particular qualities of this one horse, and then by my intellect or mind I penetrate in behind all these physical qualities of this horse and bring forth the idea of a horse in general or the universal species of horse, which is a universal idea, like to that in the mind of God, that is the Son, according to the model of which this horse and every horse and every creature is made. The first act of the mind is to know the species and only by reflection do we know the single concrete individual of any species or material thing. The soul is united to the body and only through that union do we understand during our time in this life. From the material and through the senses, which are partly material and partly spiritual, the soul draws its first impressions, till it makes them wholly spiritual by the spiritual mind. The mind thus receives impressions or images from the imagination and from being single, individual and concrete, it makes them universal, abstract and spiritual like itself.

Besides this, it preserves them for future use. For the faculties of the soul are known by the acts. To receive an impression is different from the act of making it universal and the preserving of these ideas and impressions differs from both. Therefore the mind is like a triple faculty and it is known by these three acts, as the passive mind, the active mind and the memory. The intellect, receiving images from the imagination, is the passive mind; the mind taking the singular concrete images from the imagination and making them universal and abstract is the active mind, while the same mind, preserving, holding up all these for future use, is the mental memory. But these are not three different faculties, but one, the mind acting in three different manners. The object of the mind is the universal.

From eternity the object of the divine mind was and is the eternal Universal, that is God himself, and the product of that is the eternal Idea or the Son. No created mind can fully understand or comprehend that the only real Universal, for no creature can fully understand the Creator. From the instant of their creation the angelic minds saw that Universal, that is, the Truth, the Son, for they are above us and nearer to God, who is the Universal Truth. Man having a soul united to a material body, does not always clearly see the universal. But from the sight of the concrete and the singular individual things in creatures, we pass to the contemplation of the Universal, dimly seen in creatures made to his image and likeness.

Man therefore has two memories. One, the sensitive memory, is that power by which he seeks sensible images, which he saw by the senses or formed in his imagination. This sensitive memory animals have in common with us. The other is the mental or intellectual memory, by which he recalls intellectual ideas once formed in the mind. No animals have this memory for they have no mind. The mind, therefore, recalling passed ideas, is the intellectual memory. It is the passive mind in action recalling its former ideas.

A person may have one of these memories well developed, to the detriment of the other. Thus persons addicted to philosophic, theologic and mental studies have their intellectual or mental memory enormously developed, while the poets, literary geniuses, artists, &c., have usually a fine sensitive memory developed in the highest degree. Animals have a sensitive memory, but not the intellectual memory, as they have no mind. In fact, some of the higher animals show a better sensitive memory than man. But man is above the

brute in this, that, while the latter remembers sensible forms by blind instinct and only when led to them by exterior things, man is free and can command the memory to bring back again these forms and images received in times now passed. He also compares different sensible forms, received in the past, one with another, with the ideas they gave rise to and with things which he sees at present. That is called reminiscence.

The human mind, being an image of the divine Mind, creates, forms by itself, and brings forth its own ideas. It brings them forth or generates them somewhat as the Father generates the son. The mind does this by virtue of its own intrinsic spiritual nature and activity. But no power which is only capable of acting can act, except it is brought from passiveness into action by another, not in simple passiveness, but also in act. Thus, when we see, there is formed in the eye an image of the object we see. But no eye can see unless there is some real, external, existing object on which the sight can rest. The eye really, and by its own intrinsic power, forms on the retina the image of the thing it sees. The eye, therefore, as well as each of the other five senses, has not only in itself the power of receiving impressions from external objects, but also the power of forming images of visible outside things within itself and on the retina. In the same way the mind has not only the power of receiving universal ideas, but also the power or capacity of abstracting the universal idea from the particular objects of nature. That is called the acting mind. The passive mind, therefore, receives from the imagination the images of sensible things, while the active mind abstracts the universal ideas from all particular and concrete qualities belonging to these images while in nature, and makes them universal and abstract and spiritual, like unto itself.

Thus the sensible species, as form, color, shape, accidents, modes, &c., of sensible things, act on our senses. From these they are received in our common sense, then they are seized by the imagination and from thence they are grasped by the mind. During their passage through these different powers of the human soul, they become more and more spiritualized, till at last in the mind we have only the abstract universal species or natures of these external objects. These are the ideas or reasons of things existing in a pure spiritual way in the pure spiritual acting mind. The power which from the concrete penetrates to the essence, to the nature and to the essences of material and spiritual things, is the active mind.

When in total darkness we see nothing. There must be light before the eye can form in itself the images of surrounding things. The sun is the chief luminary, which enlightens the surrounding world. In the same way the mind can see the universal only when enlightened by an intellectual light, that is, the light of reason. The source of that reasonable light is not the material sun in the heavens, but the Son of God, the Light of the Father, he who "enlightens every man coming into this world." Therefore, before we can even think or bring forth a single idea, it is necessary that the light of God's reason should shine upon us. Then the Word of God, the Son, who is the Eternal Reason of God, by the light of his reason raises up our acting minds, so that we can see the universal by, through, and in the single concrete and particular things of this world. Then the acting mind in man forming our universal ideas is a certain partaking of the Supreme Reason of God.

God the Father brings forth the Son as the Eternal Idea of his mind. He made the world as an external expression of the truth, beauty, and perfection of that only-begotten Son. Then every creature on earth or in heaven represents, in a more or less feeble way, the perfections of the Son. When man sees surrounding objects and from the images of these furnished by the imagination, when from these he brings forth abstract and universal ideas in his own mind he is enlightened by the light of reason coming forth from the Son. Each idea, universal and abstract in our minds, represents a perfection of the Son. Therefore, every thought or idea, coming forth from the human or angelic mind, represents the Son ever generated and coming forth from the Father.

CHAPTER XVIII.

What is Reason?

The great writers of old say that "man is a reasonable animal" and the scientific discoveries of our time confirms what the penetrating genius of the scholastic school wrote so many ages ago relating to the nature of man. Let us lay it down clearly. Man has all the qualities of the mineral, of the vegetable, and of the animal, in the most perfect development, and to all these he has also the spirit kingdom, reason, and faculty, which belongs to the pure spirits. Man is therefore a reasonable animal. But in order to understand the complete nature of man, we must treat of reason, by which he is distinguished from animals. Reason, that godlike gift, is the highest attribute which can belong to any creature, for by that, above all, a creature resembles the Creator.

The senses, seeing only the particular and physical properties of material things, cannot rise above their physical nature, for they are single and particular and can see only the concrete and particular, while reason penetrates farther, rises higher, grasps the abstract, the universal, sees the relations of things, accommodates means to attain an end, seeks the causes of things in their effects, judges of effects by causes, uses the forces of nature to attain man's end and rises to the supreme end and cause of all things, God. Reason, then, can abstract the species and genius, study the sciences, use spoken or written words to convey ideas, observe the march of ages in the past, grasp the future and form the study of the universe, rise to the first and primeval cause of all, who is the Creator.

The animals are the lowest beings which know, for they acquire knowledge by the five senses. But they know only the single, the particular things or objects around them. But reason goes farther, and from the singular and from the concrete, reason rises to the universal and to the abstract. Man, therefore, by the senses acquires a knowledge of the single material things around him, and by his senses he

perceives those objects which belong to the physical world. But by the mind, in reasoning, man abstracts truth from the singular and makes it general, abstract and universal. In reasoning, man either affirms that a thing is true or says it is false. To the mind, then, clearly enlightened, a thing is either true or false. If he is not clearly enlightened the thing is to him doubtful or probable.

In reasoning there are three acts of the mind : first the apprehension of the mind by which we see the thing proposed, then the judgment, by which we affirm or deny the truth of the proposition, then the conclusion which we draw.

The mind thinks by bringing forth ideas. Let us understand the nature of the ideas in our mind.

An idea is the representation of anything existing in the mind. The thought or idea is down deep in the mind as the natural language of reasonable beings. In God the idea of his eternal mind is the Son. We think, then, without spoken language, by the formation of ideas in our minds, and spoken language is only the external expression of these ideas. A language, then, will agree with ideas and these will agree with external things, and spoken words are the expression of these ideas.

Things which exist alone and in themselves, whether spiritual or material, are substances. The names of these things or substances which exist alone are called nouns. Modes of substances, or things which cannot exist in themselves, but in others, as color, movement, &c., are called accidents and their names are called adjectives, because they are thrown on or added to substances. All things act, for they all tell of the Creator God, whose life and existence is the infinite Act. The word which expresses the actions of things is called a verb. Things act or are acted upon. If they act the verb, which expresses that action, is an active verb. If they are acted upon, then the verb is called a passive verb. The thing may act or be acted upon in different ways and manners, and that is expressed by an adverb, because it expresses some quality of the action expressed by the verb. The time during which a thing may act is in the past, the present or future. From that comes the time or tenses of verbs. This time, modified in various ways, gives rise to all the tenses of the verbs.

If the thing acts in an absolute way, the verb which expresses that action will be in the indicative mood. If the action depends on a condition, the verb will be in the subjunctive mood. If a command, it will be in the imperative mood.

When the verb expresses, not that which is in reality, but that which might be, that is, not the real but the possible, then it will be in the potential mood. When we do not wish to repeat again the name of the substance, we use another word in its place. That is the pronoun. When the action of the substance passes out and acts upon an object, it is called a transitive verb. When the action does not pass without, but remains within the acting substance, it is called an intransitive verb. In this way we see that as every substance acts, in that it represents the infinite act of God, his own existence. Thus in grammar no sentence can be complete without a verb expressed or understood, which tells of the action of the being.

Language, therefore, stands half way between the exterior object and the idea existing in the mind and representing that object. Language is the means by which we make known our ideas to others. The idea or image of a thing in our mind is like the Idea or Image from eternity, existing in and proceeding from the mind of God, the Father. That Idea in the Divine Mind is the Son of God. Thus every thought proceeding from the human mind, in a feeble way represents God the Son, proceeding from the Mind of the Father, God. But if the Son had remained forever in the Mind of the Father, the world would not have known him. So if the idea remains in our mind, no one else will know it. By language, therefore, that is, by words expressed to others, we show to them the thoughts of our minds. Thus the Father sent the Son into the world, that we might know more of his glory. Then in the Incarnation the Son became known to man. Therefore, every spoken or written word, coming from the human mind, is but an image of the Incarnation of God's only Son, who came forth into the world, that the world might know him and be saved by him. Thus every act of creature represents in a more or less feeble way the perfections of the Godhead. On every side we see the vestiges of the Trinity, and the life of God is shadowed forth more or less dimly in irrational creatures. But when we study reasonable creatures, as men and angels, there we find a far more perfect image of the Trinity.

It is evident that nothing can act till it first exists. To be, therefore, is first necessary. For that reason, the foundation of all things is existence, to be. We see, then, that the verb—*to be* begins and runs through the whole category of verbs in all grammars, and that it is scattered through all the modes and tenses. Whether it is expressed or not,

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the verb to be is the foundation of all verbs. It is called the infinitive verb, because it relates properly to the real Infinite, who is God, and who has in himself, being independent of all others, while creatures have their being from him, and in that they represent him, the only self-existing Being. The words to be have no past or future, for they relate, strictly speaking, to God, with whom there is no past or future, but the ever present, the eternal present, which is his Eternity. For that reason, when he spoke to Moses from the burning bush, he said: "I am who am." With God, then, there is no past or future, for that belongs to time, and time is the measure of the movements of the material world, the measure of the mutations of the mineral kingdom, while all reasonable creatures, with God at their head, always dwell in the present. For that reason, when our minds are intently occupied, we take no notice of passing time.

We have here laid down the foundations of all grammars, and if grammarians do not agree, it is because they have not clear ideas on these subjects.

Like all other sciences, we find that grammar is founded on the natural relations of things deep in the mind of man, and that it takes its rise, like all other sciences, in unchanging essence of God. Everything which exists is true because it is, and each thing is good inasmuch as it attains its end. Thus a thing is true when it conforms to the Son in the Divine Mind, and a thing is good inasmuch as it conforms to its end, to the Holy Spirit in the Divine Will. Then every thing is one, true, and good. In this each creature resembles the One True and Good God, who created it an image of himself. As each was created to realize the Divine Idea in creation, so each creature was made to do the Will of God. All things here below were made for man's use, benefit, and happiness, while man was made to do the Will of God. All creatures here below, therefore, are good inasmuch as they lead to man's use and happiness, while man is good when he does the Will of God. Happiness is the possession of the good. But the good is God the Holy Ghost. Therefore, man's happiness is the possession of God.

All things here below were made for man. That is their end, to serve man as so many means and instruments, in order to enable him to attain his end. But the end of all beings with mind and free-will is God. Thus by their very nature, man and angel tends toward God. By the mind, they contemplate the True, who is the Son, and by the free-will they possess the Good, who is the Holy Spirit.

Ancient authors called the mind by a word which means to measure, and rightly, for it is the highest faculty of any creature, and it is the model and the measure of all things below it. By the mind we bring forth thoughts or ideas which are the reasons of things. Each creature has in the divine mind the reason of its existence, as we have in our minds the reasons of our actions. It is well that we go deeper, and study better the conduct of the human mind, in thinking or in bringing forth its ideas.

The infinite is that which has neither end nor bounds any way. It, therefore, is found in no creature, and belongs properly to God. The only thing on this earth which is infinite in its power of receiving truth is the human mind, for it was made to study God forever and ever in heaven. Therefore, there is no end or boundaries to what man can learn when he seeks truth.

Everything which is, is true, and it is true because it is, for if it does not exist it is false. The mind, having within it the perfections of all things below it, brings forth ideas, that is, mental images of external things, which we see by the senses. If these ideas represent the things as they really are, then the mind has seized truth. Truth, therefore, consists in the similarity or the equality between the thing and the mind. When a thing is made according to its nature, that is, according to the type in the divine mind, it is metaphysically true. When it is not made according to its nature it is a deformity.

The nature, reasons or types of things are universal according to the conception or idea in the divine mind. The idea in the divine mind is the Son of God. When we see that a thing is not made after the nature which it should have, we are pained, shocked, or startled. Thus the thought or sight of a man born with only one leg gives us pain. Thus it is all through nature. For these creatures are all made according to the eternal and universal plans in the mind of God, that is, they are modelled after the perfections of the Son, and the human mind was made to first study the perfections of God, the Son, here in this world in the beauties of nature, and after death to contemplate for eternity these perfections, eternal, universal, and infinite, in that divine Son. Then, everything which is, is an image of the true God, of which the Son is the Example, the Image and the Pattern. All things, compared to the mind of God, are absolutely true and in nature, and therefore in God there is nothing false. The type of all things from eternity

existed in the mind of God, before he brought them into actual being by creation.

Created things, therefore, relate to two minds, to the mind of God, and to the mind of man. Compared to the mind of God, they are a perfect equation, and no falsity or mistake. The Image, the Son, was in the mind of God before he made the world. But they were made before we knew them. But there is not always a perfect equation between these external things in nature and our minds, and therefore we make mistakes and are sometimes deceived, because our minds are weak and finite. When we tell another person just what we think, we speak the truth ; when we tell what we do not think, that is a lie. Then, to tell that which is contrary to what we believe, is a lie. Thus, metaphysical truth is the equation or similarity between the thing and the mind of God, logical truth is the equation between a thing and the mind of man, while a moral truth is the equation between the thing said and the belief and intention of the one who speaks.

We now understand what is false. It is the opposite of the true. Any inequality between the mind and the thing is a falsity. That cannot take place in the mind of God, for he is infinitely perfect, and perfectly sees all. Therefore, there is no metaphysical falsity in nature, for nature is always true, because it is the external expression of the perfections of the divine Son of God, who is essentially the True. Error and falsity, therefore, can be only in man and angel, because they have mind and free-will, and can fall away from the rectitude of the divine Mind. Things having been created according to the idea, that is the Son, in the divine Mind, therefore the divine Idea or the Son preceded, and was before these created things. But in the human mind the ideas rise from the sight of the things we contemplate in nature, and therefore our ideas are later than these things we see in nature. But the human mind is weak and may get its ideas wrong. That is error.

The object of the mind is truth in the abstract. The first act of the mind is to see its object without affirming or denying its truth. The act of the mind, which is reason bringing forth its idea, does not pass without, for the idea always remains entirely within the mind, which gives it birth. The idea is of the same spiritual nature with the mind. In this it is like the Son of God, who does not differ in nature from the Father, who brings him forth. This idea or representation of a thing existing in the human or angelic

mind is called the mental word, a thought, a conception, a similitude of the thing thought of or simply knowledge. It stands half way between the mind which gives it birth and the thing which it represents. It is, then, a sign in the mind of the thing of which we think.

A sign is that which leads one to knowledge. Signs are of two kinds ; one is a natural sign when it is found in nature. Thus, smoke is a natural sign of fire. A thing is a conventional sign, when it is not founded in nature, but on the agreement of men. Thus, the words on this page are not natural but conventional signs of ideas expressed by the English language. A flag of truce signifies a stopping of hostilities, not from the nature of things, but from the agreement of men. The ideas or images in our minds are natural signs, or the reasons of the things of which we think, for they come from the very nature of the mind itself. External things outside us are the signs through which we learn, while ideas are the signs by which we think and know. Without these internal signs or ideas we can know nothing, and when they are absent the mind is a complete blank, plunged in everlasting intellectual night.

Each idea or thought which the mind brings forth is a universal idea. First we conceive the idea or thought of a thing. That is the subject. Then we affirm or deny some quality of that subject. That is the predicate. We in this way state that the subject either acts or is acted on. That is the union between the subject and the predicate. We reason, therefore, by a series of judgments, by which we compare one idea with another, and draw from that comparison a conclusion. Therefore, a thought may be defined as that to which each judgment of the mind may be resolved as subject or predicate. Each thought or idea is the spiritual representation or image of anything, whether material or spiritual. That thought or idea in the mind of God is the representation of himself and it is the Son, the faithful image of the Father.

Certain axioms of mathematics are true and want no proof. In every science, and in every-day life, we meet truths which want no proof, because they are self-evident. But there are other things, the truth of which we arrive at only after long deliberation and after a series of reasonings. Such are the examples of mathematics, the conclusions of the various sciences and the various truths which we must prove. For example, we cannot see the conclusion of a problem in mathematics or the answer to a sum in arithmetic till we work

out the sum, although the sum is true and as unshaken as any axiom. This process is called reasoning. Reason, therefore, is the mind in activity, and it is not a special faculty, different from the mind. In reasoning, then, the mind sees a truth and from the latter it draws its other truths. According to the syllogistic form laid down by Aristotle, the mind first sees a general truth, then it compares another truth with this and from the two we draw a conclusion.

In reasoning, then, the mind arrives at truth and the science which guides the mind in this search after truth is called logic. We see, therefore, directly or in itself only, the first principles of truth, which are called primary principles or axioms. But in order to go farther we reason according to the laws of logic. But the angel's mind, being of a higher nature than ours, sees at once and in an instant all truths, which we see only after having gone through the process of reasoning. Therefore, an angel would not have to go through the trouble of figuring out a sum in arithmetic, in order to get the answer, but that celestial spirit could see the answer in an instant flowing from the principles. In God, who is the Supreme Mind, all principles of science and all truth exists ; they are the Son. The angels see only what God gives them to see, but God is truth itself, and in him, therefore, is the principle and the truth of all things. In him the Truth is the Son, of which each truth in the minds of men and of angels is only the image and the figure.

We conceive things and form ideas of them in two ways. In one way we conceive a thing present, because we see it. Thus you form ideas of the words in this book, because you see them. That is called intuitive perception. Again we see a thing, not because we see it present, but because we see it through other things. Thus we see the cause in its effects, although the cause is absent. Thus the good in heaven and the angels intuitively see God present, and they thereby contemplate his perfections, while in this life, we only can see him in his effects or works. Our ideas of things may be clear or obscure, distinct or confused, complete or partial. But the mind, being a true image of God, who is truth, can have no idea of anything impossible. Then we cannot think of a mountain without a valley, of a square circle, of 2x2=5, &c., because they are impossible or absurd. Mental words in the mind of one who conceives them, always represents the thing of which he thinks. But spoken words may have one or many meanings, and thus cause confusion and an equivocation.

An idea has an analogical meaning when it relates, not only to the thing it signifies, but also to another. In this way it gives rise to more than one idea in the mind. Thus we say of an animal of food and of color, that they are healthy. That takes place when one quantity belongs to two or many, or when two or more produce similar effects. Thus we say that the mind is the eye of the soul, because, like the corporal eye, the mind sees its object, truth. But there must be a likeness with, at the same time, a great difference between the ideas or things signified, otherwise, if they are the same in every respect, there will be no analogy. Again ideas arise in our mind which stand alone, while others have another idea connected with them. That is the association of ideas. Thus the idea of substance stands alone, while accidents or modes, as color, motion, &c., always suppose some substance colored or moved. Some ideas carry with them the notion of a multitude, as the thought of an army, government, &c., while others signify one single being, as man, a tree.

As the direct object of the mind is truth universal, it is well for us to understand the universal, which is the foundation of all sciences. We see the universal when we abstract any quality from a thing, or when we see the essence of a thing, and contemplate that, not alluding to any individual quality. Thus I see the universal if I study the whiteness of this paper, and consider only its whiteness as belonging to all other white things. A universal idea is transcendental, when it belongs to all things, as the idea of being or existence in general. When it does not belong to all things, but only to some, it is not transcendental, as the idea of hardness, &c. Transcendental ideas refer to particular things in five different ways, as genus, difference, species, the attribute, and as the accident. An idea which is common to many things, so that it is a part of their essence, is the universal idea, called the genus to which they belong. If it is an integral constituting part of the essence of a thing, it is the species to which the thing belongs. If it is a determining part of the essence of many things, it is the difference between them. If it follows from their essence it is the attribute. But if it is something superadded to the essence of a thing, it is an accident.

Beings are divided into various kinds, as substance is divided into incorporal and corporal. The incorporal substances, called the pure spiritual, comprises the nine choirs of angels, with God at their head. Of them we will treat

farther on in this book. The corporal substances, called also bodies, are divided into inorganic and organic. The inorganic bodies, comprise the mineral kingdom. The organic bodies called living organisms, are divided into insensitive and sensitive. The insensitive compose the creatures of the vegetable kingdom. The sensitive organism, called animals, are again divided into irreasonable and reasonable animals. The irreasonable animals comprise the various genus and species of the animal kingdom, while the reasonable animals are the members of the human race.

Man having the lowest kind of reason, cannot see many things, or bring forth many ideas of things or thoughts of their qualities at the same time. For that reason the mind divides one idea into its component parts, or one idea from another, and contemplates one after the other. In that way, we can at our leisure study each property or thing, till we have mastered the subject. This is called analysis.

When we see one idea and understand it, we then grasp another, and when we have understood this second thought we compare it with the first, or we compare any idea with the quality which agrees with it. One is the subject, the other the predicate, and the verb expressing the agreement is the union between both. Thus every sentence has a subject, a predicate, and a verb which denotes action. Four things are to be condensed in every sentence—the ideas, the extension or universality of these ideas, the comparison of the subject with the predicate, that is the affirmation or denial of the agreement of the subject with the predicate. When a sentence is simple, it has only one subject and one predicate, but it may have two or more subjects and predicates, or many connected propositions. It is then a compound sentence.

These sentences are divided into the enunciatory, when we simply announce a thing, the deprecatory when we ask a thing, the imperative when we command, and the vocative when we address another with a simple name. The chief parts of a sentence are the noun, the word signifying a substance which acts, and the other word expressing that action. All the other words only modify these. The noun is the name of anything and has no time attached to it, while the verb always has a time during which its action takes place.

The mind in action is reason. We announce a truth by affirming the agreement between two ideas. One idea represents a substance, the other affirms or denies their

agreement. That is a judgment. But in order to do this we must state that all through nature there are certain properties, common or general or universal to many things. The mind, by its innate power of seizing the universal or general properties or qualities of things as soon as it has a clear idea, the mind compares these ideas with some other idea, and at once affirms or denies this agreement. By the passive mind we simply grasp the idea. But by the active mind we judge. Therefore knowledge is in the judgment of the mind.

The mind, judging of the agreement or disagreement of two or more ideas, makes a complete sentence. The universal is the form or plan according to which an indefinite number of particular things may be made. Thus the idea of human nature is the universal form or type according to which all particular men may be made. That plan is not only in the mind of God, as the Son, but we also can see it. For the human mind, by its innate superiority over things, abstracts from particular things their general plan, or the form common to all belonging to that species or genus. This deriving of one truth from another is called deduction. We do so by seizing, defining, judging and concluding.

There are certain truths so clear and so plain that the instant the mind sees them, it pronounces them correct. These are called primary truths or axioms. But there are many other things no less true, but the mind sees them only after a series of studies and demonstrations, such as the problems in mathematics. First the mind perceives the truth, then it defines the limits and extension of the truth, then it judges that the predicate agrees or disagrees with the subject. All these different processes are called reasoning. Hence the mind does not all at once arrive at the truth of what it sees, like the angel, but gradually.

When from the general and the universal we deduce other truths, it is called deduction. When from the particular we rise to the general and the universal it is induction. Aristotle, in his Organ, first laid down the great rules of deduction, and Francis Bacon, in his work, The New Organ, gives us the rules to be followed in induction. For centuries, Aristotle's rules were followed, and even to-day, with all our knowledge, we cannot improve on them. Bacon's rules first showed us how to pry into the secrets of nature and deduce laws for the improvements of the modern sciences. His disciples, followed these wise principles and gave that impetus to the English-speaking races, by which so many

improvements, inventions and discoveries have been made in modern times and by which the conquest of mind over matter has made such strides for the bettering of human life.

The way we reason is this. The mind sees first the objects around us, by the five senses, and abstracts from the imagination general or universal ideas. These ideas are the essences or natures of things, like the plans in the mind of God, the Son, according to which they were made. Then we compare one idea with another, or a third with one or both and judge the agreement or disagreement of these ideas. Then only gradually and step by step does the mind arrive at truth, because it is united to an organized body which gets its growth and strength, not all at once but gradually, for the soul of man is not a pure spirit like an angel, but a spirit united to a material body.

The mind reasons according to a certain system called a syllogism. The simplest way is this. We first lay down a universal idea called the major, then a single idea called the minor, then we compare them together and draw another idea, which is the conclusion. Each of these will be a complete sentence. But there are numerous modifications of this form of syllogism, each having its own rules and methods. A false reasoning leading to error is a sophism. Considering the nature of the mind, this syllogistic form is the chief way of arriving at truth. But we must not conclude that induction is not also a regular way of obtaining truth.

In deduction we derive the particular from the universal, while in induction we abstract the universal from a number of particular things. Thus seeing a great many bodies fall, we conclude that all bodies fall. Deduction is the foundation of mental sciences, while induction is the foundation of the natural sciences.

In induction we study each individual thing, one after the other, and when we find that each is like the other, we conclude that they are all alike, and form a species or genus or race of things ; in order to be absolutely certain, we should examine each and every one, as each plant or each animal. But that is impossible, and we study a large number, till we arrive at the general law guiding them, or till we get an idea of the species to which they belong. It is evident that induction is but a kind of deduction and that all at last may be reduced to a syllogism. For we find that each particular thing is guided by a general law, and from this general law or universal rule governing

these things which we see, we conclude that it governs those of the same kind which we do not see. Thus the most natural kind of reasoning is the syllogistic or deductive form, which is so little known to-day by scientific men. In fact, induction is only a kind of deduction, for from the rules and laws which we see guiding different things, in their modes of life and action, we judge that these laws rule all others of the same kind, and this is deduction or the drawing of the singular from the universal.

In studying the human mind in action, which is reason, we must remember that it is a faculty or power of the soul, and that the human soul occupies the lowest rank among the reasonable beings. Above man is the angel, who has a more perfect mind, and reasons quicker, more exactly and more perfectly than man. But in God alone is found perfect reason. For he is eternal Reason itself.

In the natural sciences man is considered as an animal belonging to the mammals, because he touches them in many respects, and has the same characteristics as the animals of this class. But man, being a reasonable animal, the knowledge of him should be treated in a separate science, called anthropology. It is true that as in nature there is no sudden void, as no gulf separates the different classes of creatures, for like the colors of the rainbow, one rank glides gradually and insensibly into the other, thus the animal kingdom loses itself in that higher animal man. Because of this we should not treat man as an animal, no more than we should consider the animal as a plant, or the plant as a mineral, because the animal has all the perfections of plant life. Botany treats of plants, and zoology of animals, and in the same way anthropology should be a separate science, treating of man, not as a simple animal, but as a reasonable animal, in which his nature precisely consists.

The trouble has been, heretofore, that scientific men look only to the bodily organism in man, which is purely animal in its nature, and they forget that it is precisely reason which distinguishes man from animals. From this, as from a poisoned source, comes much of the materialistic errors of our times. It is true that medical science, in order to cure diseases, treats of man separately from an animal standpoint, but medical men, absorbed in anatomy, physiology, and the elements of the body, forget the human soul and the influence of mind over the body. They treat, then, only a part of man, his bodily or material part, and they leave out his nobler faculties, reason, the mind, the will, and the soul.

Following the false principles that we should study only the human organism, that is only the body, modern scientists are led into the error of supposing that man has no soul, but that everything in him is material, that life is only the result of the physical forces of nature. Others, again, finding nothing in the body that they can see but the physical organs, the same or much like the animal organs, these think that man was developed from the monkey.

Although in nature there is no hidden rise from one class of creatures to another, still the gap which separates man from the animal is the most sudden and greatest which we find between any class of creatures. For the difference between sense, the object of which is the particular and reason, the object of which is the universal, is a greater and a wider chasm than any other separating the different classes of creatures. It is true that some animals show wonderful wisdom in their acts, but these acts are nothing compared to the wisdom shown in the construction of their bodies and all this is instinct, the work of God, who laid down at creation the laws of their growth, life, and action.

So the wisdom shown by animals is the wisdom of God guiding them by instinct. But reason is different. By reason we are masters of our own acts, while animals are guided by their senses.

But we have not only reason, by which we are above and distinct from animals, but we have also free-will, by which we do as we choose. In this we are also above and superior to animals. But of the free-will we will treat in the following chapter.

CHAPTER XIX.

The Free-Will.

Man has not only a mind but also a free-will. By these two faculties we are superior to animals, and take our rank among reasonable beings, the heavenly spirit, at whose head is God. These two faculties, mind and free-will in action, make reason. They are so closely united together that one naturally follows the other. Thus every being which has a mind has also a free-will, and those with free-will have also a mind. Every being naturally tends towards its end, and by its instinctive nature it directs itself towards that end, because every creature was made for some end. For God, as a reasonable Being, always works with an object in view, otherwise his works would be useless, unreasonable and nonsensical. Then nothing can be indifferent towards its final end. Thus the mineral ever tend towards the centre of the earth. The suns and planets moving in ceaseless revolution. The plants are ever growing, nourishing and reproducing themselves. The animals perfect themselves by their natural appetites. These natural appetites of the animals direct them towards those materials which is good for them as individuals, or which has for an object the preservation of their race. In man these animal appetites are the passions. When man's passions are satisfied according to reason, they are for the good of the individual man, or for the preservation of the human race. The natural appetites, then, of animals and of man, tend toward the objects seen by the five senses. These passions and desires are entirely animal powers, like the five senses, which sees the objects of those desires.

But there is another faculty in man, which tends not towards physical objects shown by the five senses, but the free-will desires only those things seen by the mind. We have, then, in us not only the carnal appetites of the animal, but also the reasonable appetites of the free-will. As the carnal appetites of the animal in us seek the objects presented by the five senses, or recalled by the sensitive memory, and re-

formed by the imagination, thus the free-will seeks the objects presented to us by the mind. But the mind shows us only spiritual truth. The will, therefore, is the reasonable appetite, which seeks the spiritual good shown us by the mind.

Without knowledge of a thing we cannot desire it, for we know nothing about it. For we cannot desire what we do not know. Without the knowledge of material things acquired by the five senses, we never desire to have them. But as soon as we know them or perceive them by any of the five senses, if they are good for us we want and desire them. The will, therefore, wishes for nothing, unless it is first presented to it by the mind. The will, then, is a blind faculty, but its light is the mind. The mind, then, is the eye of the soul. It is evident that the objects presented by the five senses are sensible material things, and the animal appetites desire these sensible things, because they are good for us. Therefore, the sensitive appetites of man and of animals are organic faculties, which cannot rise above the material and sensible objects which they desire. But the mind sees the universal, the spiritual, and rises through the various ranks of creatures, and penetrates even to the Eternal, and presents these to the will. The mind being a purely spiritual faculty, and presenting, under the species of spiritual truth, these spiritual things to the free-will, it follows that the free-will of man is a spiritual faculty.

Among the animals, then, appetites are sensitive desires, because they desire only sensible things. The object of the senses is the true in the visible and material things of nature, for the surrounding objects which they see are true inasmuch as they exist and act. But the object of these animal appetites is the sensible good in these sensible things, that is, the good, which is useful for them individually, or for their race. If they desire that which is good, simply as being good for them, their appetites are called by St. Thomas the concupiscible appetite. But if they can acquire the object only with difficulty, their appetites are called the irrasible, for they obtain their object only after overcoming difficulties standing in the way.

As man is a reasonable animal, he has all the powers, both of a reasonable being and of an animal. The angel being a pure spirit has only mind and free-will.

The angel has no sensitive faculties by which a body is animated and vivified as in man. Therefore, with their mind the angels see pure truth entirely separate from matter

and with the will they desire only spiritual things. In man our sensitive appetites seek the things seen through the senses, or which our imagination proposes while in our pure spiritual faculties which, that is, in the reasonable part of man, is above and independent of the organism or human body, the will desires the spiritual things shown it by the mind.

But the mind can not only judge of the truth of surrounding sensible objects seen by the senses, but it can penetrate beyond the forms and accidents of bodies, and see the good in all things God made. Thus the free-will can desire the good in sensible things, as well as the good in purely spiritual things. But when a man obtains the good in sensible things the possession and enjoyment of that sensible good is called sensible pleasure. But if they are spiritual things, the enjoyment and the possession of them is called spiritual pleasure. Pleasure, then, is the possession of the good. But sensible things are below us, while spiritual things are above us. When a person gives himself up to the pleasures of sensible things, he turns to things below him and debases himself till he becomes a beast. Music is the only sensible pleasure we can enjoy to an unlimited time, without lowering or hurting us. We can unceasingly gaze on the beauties of a landscape, because it reflects the beauty of living creatures, which tells of the eternal beauty of God.

The object of the mind, then, is the true, and the object of the will is the good. When the mind possesses the true, it gives rise to learning. When the will possesses the good, it gives rise to happiness. All through our lives we are pursuing the true in seeking knowledge, and the good in seeking happiness. The animal cannot advance beynod the sphere in which he was created. He is just like the animals of the same species, which lived a thousand years ago upon this earth. But man, not only as an individual, but as a race, is every day advancing in knowledge. Our education begins with our birth, and ends only at our death. We are ever seeking the true by the mind, and the good by the free-will.

But no matter how learned we become, we still want to know more, no matter how much pleasure we possess in the enjoyment of the good here in this life, we are still not satisfied, we always want more. There must then be some other state of existence where these two noble powers of man, the mind and the will, shall be satisfied, otherwise the nature of man would be incomplete. But more of this farther on.

God is a reasonable being. Having made man to his own image and likeness, if we rise from the study of man to that

of God, we expect to find the Creator like man, whom he made to his image, except infinitely more perfect. Every reasonable creature has a mind and free-will. These are two faculties differing from the essence of the soul. From the mind comes forth the truth, from the free-will comes forth the good. Reasonable creatures bring forth their acts by the faculties of mind and free-will, because they are imperfect. But in God there are no faculties different from the Divine Nature, but his acts proceed directly from his own Divine substance. Then from the Divine Essence or Substance of God, as a reasonable being, comes forth the Truth and the Good as in them and angel, truth and good come forth from the mind and will. But in God the Truth is the Son, and the Good is the Holy Spirit. The mind of man always seeks the truth, and is never satisfied upon this earth. But it will be in heaven. For the Son of God, the Truth of the Father, contains all Truth, and in the contemplation of the Son, the created minds of men and of angels will be satisfied. The free-will of man ever seeks the good. But the free-will of man is not satisfied with any joy, pleasure or happiness upon this earth. But in heaven the free-will will then possess the Eternal Good, that is, the Holy Spirit. In heaven, therefore, during eternity the mind will be satiated, satiated with the unspeakable Truth, that is the Son, who is generated by the Father, and the will of man and of angel will be filled with the Good, that is, the Holy Ghost, who proceeds from both the Father and from the Son.

Each one experiences the power, authority and command which the will exercises over the other faculties of soul and of body. But by exercise our faculties soon acquire a habit, by which we easily perform the acts again and again as the habit grows stronger. We should therefore never give in to any bad act, or if we repeat it often we will soon grow into the habit of doing it easily. Habit, then, weakens the will because it takes away the power of control. Each one should study to strengthen the will and make of his whole soul and body a machine which always acts under the control of the will. The great trouble with modern society is that the will is not trained to control the rest of the faculties. Experience teaches us that we cannot study anything well unless the mind and all the powers of the soul are in a state of rest and calmness. Thus when we are agitated by interior difficulties, or while we are absorbed in external things, we cannot study, because man, being an exceedingly complicated

creature, with every faculty and passion in him at work, and each faculty seeks its own particular object, more or less independent of the will. In order, then, to study well the quietness of retirement and the repose of the whole man are required. For this reason institutions of learning are generally in retired places and students should have the most perfect repose, safe from disturbances, both from within and without.

As man is a living mineral and vegetable as well as a reasonable animal, he has all the faculties of these various kingdoms of nature. But each faculty or power seeks its own particular object. For that reason there is a conflict within us which each member of the human race feels continually going on within him. We have seen how each creature of the lower kingdoms of nature acts not wildly and irregularly, but according to law and order. So in man each act should be as in the rest of nature, according to law and order. These laws were made for the controlling of the powers and faculties of the soul, for the good of man both here and hereafter, for the good of each individual, and for the good of the whole race. The mind being "the eye of the soul," shows these laws to the will and enlightens the free-will regarding the goodness or badness of each particular act before we do it. That is called the warnings or dictates of conscience. If the will goes against these warnings or these dictates of conscience, it is a sin. If the will follows the dictates of conscience, it is a good and meritorious act and has its reward, sometimes in this life, mostly in the other.

There can, therefore, be no good or bad act except the mind and free-will have a share or takes part in it. For if a person forgets or does not know or thinks that they are doing right, what they do is not bad, because they do not go contrary to their conscience or contrary to what the mind says should be done. Then there can be no good or bad act without the mind and free-will taking part. Sin, therefore, is the abuse of reason, which is the highest faculty of man. We cannot sin except we freely and deliberately do wrong, knowing that it is wrong. Sin is not exactly in the act but in the motive or desire to do wrong. A person, therefore, can sin only by the interior act of reason breaking away from the line of what the mind sees and knows to be right and doing that which the mind knows to be forbidden.

There are many passions in man which were given him to direct him by instinct to what is right and lead him to what is good, either for him or for his race. These are the vege-

tative or animal passions. They are not bad in themselves or in their objects, for all God made is good. These passions are bad only in their abuse, when they are gratified contrary to law. If a person does anything not knowing that it is forbidden, there is no sin, for he did not know and therefore he did not act as a reasonable being, but as an animal. It is the act of an animal if reason take no part in it. Therefore, only the abuse of reason is a sin and it is especially seated in the abuse of the free-will, pleased with the breaking of a law in the past, turning to any forbidden act in the present, or desiring a forbidden thing in the future. Then a thing may be a sin in itself, but not for you if you did not know, then and there, when doing it, that it was forbidden. The finding out afterwards that it is forbidden does not make it a sin for you, if you did not know it before. It is a greater or less sin inasmuch as there is greater or less free-will and knowledge in the one who does it. Then the greater the passion and desire the more this passion influences the will and takes away liberty. For we sin because we are free and abuse our liberty. But where passion or ignorance drags along our will, or blinds our mind, there is less abuse of reason and less sin. Therefore, the greater the ignorance or the more the passions influence the mind, so as to take away the light of reason, the less the sin. All passion tends to weaken free-will and ignorance tends to take away the light of the mind, which is knowledge. Therefore, there is no sin when there is no law, or no knowledge of the law before or while doing the forbidden act.

The laws which guide man in his free actions come from four sources or authorities, from the natural, instinctive knowledge of the difference between right and wrong written by the God of nature in the mind of each, from the revealed law of God, as the ten commandments, from the Church in her laws for Christian society, and from the particular government under which we live. These three last are founded on the first, that is, on the law of nature, for all laws at last are reduced to our natural instinct between good and bad, between right and wrong. For there is written in the heart of each person which carries in himself the resemblance to his Creator. Law is the impulse of the Creator directing creatures towards their end. Then every law is founded in the eternal fitness of things, as these but express the perfections of the Deity. Every law, therefore, resolves itself at last into the eternal law of God, that is, into his supreme reason. For no man can make a law for his fellow man

unless he partakes in the authority of God or has authority over those for whom he makes that law. And there is no authority but from God, who by right of creation has authority over all things. Rulers, therefore, rule because they partake of the authority of the Supreme Creator. God made law to rule his creatures and he is behind all laws because he is a law to himself and all his acts are according to the supreme law and order of his Being.

To sin, therefore, is to break a law of God. Because we are free to do good or evil do we sin. But the animals and other creatures below us cannot sin, for they are not free. But the freedom to sin is not a perfection, but an imperfection in creatures. For we sin, not by the use, but by the abuse of mind, reason, liberty, and free-will. For as the mind, seeing necessary truth, as $2\times2=4$, or the axiom, the whole is greater than its parts, the mind seeing such truths cannot but agree that they are true. For the liberty of saying that $2\times2=5$ would not be a perfection, but an imperfection of the mind; so to fall away from the light of reason in sinning is an imperfection, an abuse of liberty and of reason. For God is infinitely free and has the most perfect reason. But he cannot sin, because that would be an abuse of his reason and an imperfection in his free-will. In the same way he cannot deceive or be deceived, because that would be an imperfection in his mind and either would be a falling away of the Divine Reason, which is his essence and his nature. In the same way the blessed and angels do not fall away and sin, because they see God so clearly that they do not turn from him, no more than we deny the truth of the multiplication table or of any truth which we see clearly.

The free-will, then, is the foundation of liberty. But liberty does not consist simply in being free from outside force. Thus we say that a falling stone is free to fall when no outside force prevents it, but that stone has no liberty. The animal has a kind of freedom which is the shadow of liberty. It eats and drinks and does whatever its appetites tell it is necessary for its individual good and follows propensities which are for the preservation of its race. This also man does. Some of the animal functions are ruled by free-will but not those which belong to the mineral and vegetative powers. Thus we cannot stop the circulation of the blood, digestion, &c. But we can intimately feel that we control our animal functions, as well as move our members. Our conscience tells us that we have the control of all our actions and that our free-will guides us through all actions where our minds enlighten us.

Our free acts are directed by our conscience. Instantly we lay down the general law in our minds, then we say, such an act we are about to do is forbidden or is not and, therefore, we must not do it or we can do so. This is the practical judgment of conscience. If we always act according to this dictate of conscience we do well. If we go against our conscience we commit sin. The law, then, is something universal, general, abstract, and outside and exterior to us, but it is applied by us to each particular and concrete individual act by our conscience. Conscience, then, is the interior monitor and director of all our actions in the moral order. Persons will be rewarded or condemned, not exactly according to the law which they do not know, but according to the interior dictates and warnings of their conscience, which directs all their acts. If we follow our conscience, conscience commends us for it and that is the testimony of a good conscience; if we go contrary to conscience we feel pain, we abuse our reason; that is the remorse of conscience. This would not be so if our acts were not free. The testimony, then, of a good conscience is pleasant to us, while the condemnation of our own conscience is exceedingly acute, especially in the good. But the bad may go on sinning and remain deaf to the warnings of conscience, till the latter is smothered and entirely blotted out. Sin, therefore, is any free thought, a word, deed, or omission, committed against our conscience.

The will seeks the good as the mind desires to find the truth. When God created the universe he saw that all was good. The free-will seeks the good in creatures. The good inspires love for that which is good and the possession of the good is happiness. We cannot choose a thing for itself but because it is good for us. The choosing of a thing supposes always that we reach it for a purpose, and that purpose is because it contains something good for us. If this last good supposes some other purpose or some other good and this still another, we should have to go on indefinitely forever, before arriving at our final good. This shows that there must be some good which is not chosen because of any other good or some object beyond it and that in it the soul will find peace and rest.

This ultimate good which satisfies the soul must not appear to us under two contrary aspects, like the other good things we seek on this earth, otherwise it would give rise to an election, and we could choose it or not. This ultimate good, the possession of which gives perfect joy and satisfaction to the soul, cannot be found in this life, because here no man

is perfectly satisfied. That ultimate final good, the supreme good, is the Holy Ghost, who is God, the last end of man. The good inspires the soul with love, for we love creatures, not because of themselves, but because of the goodness in them. They are good for us. Therefore, we love them for the goodness which is never separated from them. They are good because they are made like unto God, the Supreme Good. The Holy Spirit proceeds from the Father and from the Son by love. He is both the Love and the Goodness, the goodness of God. Goodness in creatures is an image of the Holy Spirit. Therefore, the ultimate good towards which the soul of every man tends is the Holy Spirit, the Goodness of God.

Now it is evident that the mind perceives instantly, and without any proofs, certain truths called primary principles, axioms or primary truths, and also certain other truths which flow necessarily from these primary principles. Without and before any proofs are given, the mind must admit these truths. In this the mind is not free, but must admit their truth. In the same way, the free-will is not free regarding certain things. Man always seeks his happiness. In that respect no man is free. For by instinct we always seek what we think is good. The final happiness of man is the possession of the good which is the Holy Spirit. Therefore in seeking his final happiness, which is the possession of God, man is not free, because he tends, by the very essence of his nature, towards the possession of God, the final good, for which he was created. Not only that, but man also necessarily desires the things which are necessarily connected with and help him to attain his final end. These things are, for example, his existence, his joy and happiness, his ease, the knowledge of the truth, &c. These necessarily attract our free-will and regarding them, we have not liberty. Thus all men desire to be happy and at last to attain to final happiness. All desire knowledge. All hope and look forward to the pleasures of a happy future.

Therefore, man necessarily desires these things connected with his final end and he is not free to desire what is contrary to his final happiness. It may happen that, sometimes, a person will seek that which is not good for him, and obtain at last, not good, but evil. But that comes from ignorance, or from the weakness of his nature, for he is often deceived in his judgments of what is good or what is bad. Therefore, we are not considering exactly the end, but the motives or reasons of men's actions in seeking the good,

the possession of which is happiness. The motive he proposes, or the reasons of his actions, is to seek his greater happiness. In this, then, we are not free, for we must always seek what we believe is for our greater good. Therefore, liberty and free-will are founded in the motives or reasons proposed to us by the mind. Without a mind, therefore, there can be no free-will. For the will seeks the good proposed by the mind, and if, sometimes, we seek the bad in place of the good, it is because the mind has mistaken the bad for the good. The bad is, then, the absence of the good. Happiness, pleasure, joy, &c , arise in us from the possession of the good, while pain, suffering, misery, &c., come from the absence of the good, or the possession of evil. There are many kinds of good, intellectual, moral, spiritual, physical, &c., and there are many kinds of evil, mental, moral, spiritual, and physical sufferings.

Regarding, then, the good, and his final end, man is not free. Besides his final end and the things connected with it, there are many things not necessarily connected with our final happiness, which we can choose or not, as we see fit. In regard to these we are free, because they are presented to us under different forms and aspects, and because, by their nature, they are not connected with our final happiness, which is the possession of the eternal Good, God.

Liberty, then, has its root and foundation in the mind, or in the mind and free-will in action, which is reason. The will, being blind, sees only those things which the mind proposes to it. The senses see the accidents of bodies, their material, shapes, outlines, and other qualities. The appetite judges what is good for the animal organism, while the mind penetrates farther, and judges the quality, the reasons, the essence, and the substances of things, and tells the will whether they are good or hurtful, or necessarily or not connected with our last end, which is the possession of God. How necessary, then, for the mind to be well enlightened and educated, so as to guide the will in all things, that we may at last repose in the fountain of all good, in the bosom of God ! Nothing is so horrible in its consequence as ignorance, especially regarding those things which relate to the last and final end of man.

Although the will is not free, regarding our ultimate end, that is, the possession of God, the eternal Goodness and the things which necessarily lead to the possession of eternal happiness, still regarding all other things, we are free. But we are often deceived regarding the good. Thus

one man puts his pleasure in one thing, and another in something else, and that makes people differ so much in their opinions of what makes happiness in this world. In all these we are free to choose as we think best. Reason is the mind passing from one truth to another, and in the same way, liberty is the will choosing of one thing after another. But in all its acts, in choosing one thing in place of another, the will is free and continually exercises its power over the animal functions of the body, even over the mind itself. Regarding the mineral qualities and physical materials of the body, we are not free. Thus the earth attracts us the same as if our bodies were still so many mineral materials, and we are still subject to the causes of our physical being. The vegetative functions still go on in us independently of our free-will. But it is especially over the animal powers that the will expresses its supreme dominion and control.

The will does not command the muscular system directly and by itself, but by the imagination and through the nervous system. For in the brain, the central organ of the imagination, all the other nerves centre and unite. Therefore, if a nerve is cut or destroyed, movement in that muscle becomes impossible. This would not be so if the will moved the muscles directly and by itself. For the soul is in every part of the body, and could act on the muscles, and move them at all times if it did not do so by the nerves. The will directs the interior sense, for if we wish we can excite the imagination to form images of things far away at will, or we can control the imagination and drive away the images if we try. In the same way we can excite the memory to recall the past. These images can excite the animal passions almost the same as if their real objects were present. In this way the will has an indirect influence over the vegetative powers of man. We can, by fear or excitement, quicken the beating of the heart, rouse the generative faculties, calm the passions of hatred, anger, revenge, love, etc.

The will also commands the mind. But not in all its acts. For the first act of the mind is the grasping of a truth proposed by the senses or an intellectual truth, self-evident in itself. In this the will is not free, but it must be told by the mind that the thing is true. The mind presents this truth to the will. The latter sees that the truth is good and desires it. The will, then, commands the mind to bring forth another truth, or to hold this particular truth longer before it. The will, always seeking the good in the pure

truth presented by the mind, exercises its power over the latter, and keeps it still longer in the study of that truth. In this way the mind is pushed on to study truth, and to continually pass from one truth to another. This is the way we study, and any one stopping and looking into his own mind will find it so.

In all this we see how closely the mind and free-will are connected. The mind enlightens the free-will with truth, and the will commands the mind to go farther and grasp more truth, and the mind obeys the will. But they do not forever go on and work in a circle. For by its very nature the mind seeks truth, its object, and it first abstracts the universal truth from the images furnished by the imagination, and enlightens the will with that truth. Then sooner or later the will stops commanding the mind to act and it ceases.

In man the mind and will are imperfect, because we are the lowest reasonable creatures. Therefore, we must let our minds and will rest in sleep. But the angel, not having a body with senses and an imagination from whence it draws its images, these pure spirits of heaven never sleep. They are always in action. During our waking hours we are always thinking, ever drawing our universal thoughts from material things. So the angels are ever thinking, ever bringing forth universal images, the types and representations of the Divine Son.

But when we rise to God, there we find not only the Eternal Mind, but also the Eternal Will, the sleepless eye which sees all things, and the almighty Will who sustains all nature in its ceaseless activities. But although we have all along spoken of God's Mind and Will, it is not strictly so. For God has no faculties separate from his Essence and Nature. For to have powers and faculties belongs to creatures. But in the Creator his Mind is himself, his Will is his own Divine Nature. We say he is infinitely Wise, Good, Powerful, and so of all his other attributes. But really he has, properly speaking, one attribute, and that is his Infinity, and that itself is himself. This naturally follows from the simplicity of God. The Father eternal Beauty is God, the Son universal Truth is God, the Holy Ghost unspeakable Good is God, and these Three are One in nature and divine substance.

CHAPTER XX.

What is Liberty?

The will is that faculty in reasonable beings which seeks the good or avoids the bad proposed as such by the mind. The will therefore, is a blind faculty, for before it can desire anything it must first be enlightened by the mind, the same as the eye cannot see till the object is first brought before it and made visible by the sun light. Hence the axiom "to the one knowing nothing there is no desire." The object of the mind is the true, and the object of the will is the good. As without light all things are invisible, so without the mind in activity we can desire nothing with the free will. Hence in creatures with a free will, there is also an intellect or mind and where there is a mind there is also found a free-will. Both of these in action form reason.

But as there are many intellectual truths, which when our mind sees them we must admit that they are true, so there are certain things so intimately connected with the will, and so founded in our nature that we cannot cease from seeking and ever desiring them. Thus, by a very necessity of our being and according to the law of reason we must admit the truth of mathematics and of certain primary axioms; and as we cannot deny them without doing violence to our reason, so we are ever seeking the good by the very same force of our nature.

The true, then, is the object of the mind and the good is the object of the will. But as there are certain kinds of truths which are self-evident and which we admit at once, which are believed by all men, so there are some kinds of things evidently good for us, necessarily connected with our nature and destiny, and these we cannot reject or cease from ever and always seeking. While we are free and have liberty regarding the first kinds of good, we are not so regarding the latter.

The possession of the good gives rise to joy and happiness. Regarding the good, we are not always free, for we always desire our own greater happiness. Nor can we cease from

ever seeking happiness which is caused in us by the possession of the good. Thus by our mind we seek the true, and, as whatever is true is also good, so the mind penetrates into the nature of things, seeks out their reasons, the why of their existence, and sees their goodness or badness and proposes them as good or bad to the free-will, and the latter faculty chooses them if they are good for us, or rejects them if they are bad. This is the conduct of these two reasonable faculties of man—in this way we exercise our minds and wills.

Liberty, then, is the free act of choosing. For as free beings we act in such a way in using our free-will that we could not have acted if we had otherwise chosen. To choose then, which is the real exercise of liberty, is to take one or the other among two or more things. In the exercise of liberty therefore, there must be two or more things from which to choose. It is not necessary that there be two or more objects, for we can consider the same object under two or more different aspects. Liberty, then, is the freedom from every outside obstacle or inside force, and freedom from everything which would determine us to do or not do. We are free when we have command of our acts. Liberty, therefore, is the free-will determining itself to act. Liberty is not a special faculty different from the free-will, but as reason is the mind in action, so liberty is the free-will in action. To act, a thing must be free and independent of every obstacle which would impede and prevent that action. Thus, if prevented, the waters cannot flow, the plant grow, nor the animal move. So we are often prevented from carrying out our intentions, because exterior circumstances stand in our way. But nothing can command our free-will. For although sometimes we cannot exercise our exterior actions, still the will is free and nothing can command it, as it is ever and always master of its own acts. A man may seem to submit and still be rebellious in his will, and nothing but he himself can control that will. For even God himself, having made us free, he respects our freedom and leaves us our liberty. Liberty, then, is the freedom from any restraint. "It is nothing else," as St. Thomas says "than the power of choosing" between two or many.

We do not choose anything for itself but because it is good for something. The goodness, then, of things attracts us, and the more good there is in them the more we want them. The motive then of our free acts is the good. But God being the eternal Good, we are not surprised that his infinite

and eternal and all-absorbing Goodness attracts the soul, so that we are not free regarding our tendency towards him, our final end. This always takes place in the soul of man and angel when they but vaguely and dimly know God. Therefore, God is not presented to our will under two aspects, for that would give rise to an election and we would be free to choose or reject him, the eternal Good. But he stands before us alone, the Infinite Good, and there is none like unto him. Then we are not free in our tendency towards him, the possession of whom is everlasting joy.

Each creature represents him. In that each thing is beautiful, true and good ; and the more of these three divine attributes creatures bear, the nearer like unto God they are, and the more we love them. Thus by our very nature we love the beautiful, the true and the good as we find them in creatures, because we were made to spend our eternity in the contemplation of the Father, Son, and Holy Spirit. The good always excites in us true love. Love is the impulse of the Creator, leading creatures onward towards the end for which he destined them. When a work is hard and disagreeable, God makes it light by love. Thus in the difficulties of rearing the young of animals and of man, God gives the parents love, so as to lighten their work for their family labor. So man and woman love each other because that is a grace of nature given them so they may bear with one another. From that love and from the union towards which that love tends, comes the child, the image of both, because the family represents the Trinity wherein the Father loves the Son, and the latter the former, and the product of that love is the Holy Spirit equal and eternal with the others from whom he equally proceeds.

The beautiful, the true and the good inspire our love, and we cannot love the deformed, the false, the bad. The possession of the beautiful, the true and the good makes us happy, and we all and always desire happiness. We can not help ever wishing to be happy as, St. Augustine says, "All men wish to be happy, and this they most ardently desire, and for this they deny other things." Are we then surprised that the beauty, truth and goodness of creatures around us, attract us when we see that they reflect in their own feeble way, the Father, Son, and Holy Ghost, who are the eternal Beauty, Truth and Goodness of the Deity, shining dimly forth through creatures.

The free-will, not only necessarily tends towards our final end, the possession of God, and ceaselessly loves happiness,

but we also love whatever is necessarily connected with our final happiness. Thus we love our own existence, our life, truth, beauty, the true religion and all which leads us to our final end, heaven. But all other things which are not connected with our final end we may love, but we are free in not loving them, for without them we can be happy. Thus it is with all the other good things of this world, we are free regarding them.

Whence it follows that liberty has its root and foundation in reason. For the will can choose only what is presented to it by the mind; take away the mind and there is no free-will. Therefore, we find that everything created, who has a mind, has also a free-will, which is the reasonable appetite.

As all truth resolves at last into the eternal Truth, the Son, so all the good ends at last in the eternal good, the Holy Spirit. For, when we choose anything, we do so because it is good and by nature and by instinct we always think, vaguely, at least, of our last end and our eternal happiness; so that if this particular good we are choosing is contrary to our everlasting happiness, we can choose or reject it. If we choose it we sin, and if we reject it we do well. But if we know that it is by its very nature connected with our everlasting happiness, we must choose it, for we are not free in regard to our final end, the possession of God, the eternal Good. Therefore, we not only have no liberty regarding the everlasting Good, but also regarding things necessarily connected with that eternal Good. Hence, while man is free regarding nearly all things in this world, he is not so regarding his own happiness, for he was made not for misery but for happiness. That is our nature. God is too good to create anyone for misery, but he always makes creatures to be like unto himself, and to be always happy. In this they resemble him. The reader, then, can see why all men are ever and always seeking their own happiness and no one deliberately seeks his own misery for itself. When we sin we do not do so because we love sin. That is malice, and is found only in the damned and in the demons. But when we do evil, it is because of the pleasures we derive from the breaking of the law, from the gratifying of our passions; and we try to excuse ourselves in our own minds for the evil we did, and we always know that in committing sin we do violence to our reason.

We are therefore not free in seeking our own happiness, and in choosing the things connected with our final end.

But this is not precisely correct. For when the mind sees the truths of the multiplication table and all other truths which are evident, or which have been proved, the mind assents and agrees and says that these are true. And freely and with full consent the mind says they are true. In saying these are true, reason is not enslaved but ennobled, and the seeing of these truths of mathematics tends to the education and to the strengthening of the mind. So in the same way the tendency of the free-will towards the possession of God, the eternal Good, all this does not destroy liberty and free-will in reasonable creatures, but rather raises up and completes them. For it is eminently noble, reasonable and elevating to turn from creatures which pass away and tend towards the Creator who lasts forever, to put away the transitory things of this world which have and bear in them only the imperfect good, and to rise towards the eternal Good. Therefore, while we say that we are not free regarding our final end, the possession of God and the using of the means which we necessarily want to obtain of him in Heaven, still this is the perfection of our liberty rather than the destruction of our free-will.

For the angels in heaven and God himself are free and have more liberty than we. Because the angels see God face to face in the only begotten Son of God, the Truth of the Father. In him they see all truth which their natures can bear and which their gigantic minds can contemplate. As the learned men and the mathematicians never deny the truths of mathematics, although they could if they would, so these heavenly spirits do not turn away from God, the eternal Truth, because that would be unreasonable. In the same way these celestial spirits with the souls of our good forefathers who have gone before us, see the eternal Good the Holy Ghost. Their free-wills are inundated, satiated with the ceaseless streams of goodness which flow into them from the eternal, exhaustless fountain of Good, the third Person of the Trinity. In partaking of the happiness of God the human soul and the angel receive it fully and willingly. They could reject it, but they do not, because they see God there not dimly and through creatures as we do now, but face to face, as he is, the supernatural, eternal Being, who gives them to partake of his own unspeakable happiness. Therefore in heaven there is true liberty and free-will, more so than on this earth, although there is no sin committed there as here. For to sin is not an act of liberty, but rather the abuse of liberty, a violence to reason, an imperfection of

creatures. Therefore God, although he is infinitely free, yet he cannot sin because he cannot abuse his reason, as that would be an imperfection.

Every thing that God created is good, because he never works uselessly. Therefore each creature is good and useful for something, although we do not always know for what purpose it was made. For as everything is beautiful, in that resembling the eternal Father, as every creature is true, in that bearing the image of the divine Son, so in the same way each creature God created is good and useful, and in that it is made to the likeness of the Holy Ghost. Thus there is good in every thing upon this earth. There is no man but who has some good in him—no creature can be found but has its use in the plan of the universe.

The possession of, and the enjoyment of the good gives rise to joy and happiness. Thus when we possess the good in creatures we enjoy them. When we are without them we feel their loss. All things in this world were made by the beautiful hand of God, for man's use and benefit.

God, then, by right of creation, has supreme dominion and control over all things. Man in a secondary way and subordinate to God, has the use of these things which are wanted for the well-being of the individual, of the family, or of the commonwealth. Some things are so very important, like the air, the waters of the ocean, etc., that all men possess them in common, while other things, as clothes, land etc., belong to separate and different individuals. In the first stages of society men, families, tribes, etc., possessed land in common. But by the lapse of ages that was found impractical, and private ownership in land was given to different individuals.

All nations have copied after that system. It appears to be the only way of carrying on the complicated state of society which has arisen from the civilization of the Christian Church. Many theories have been held in modern times against this system of holding property. Some claim that the land alone should be taxed; others that the state alone should possess property, and farm it out to each one as he deserved. This is socialism. Again, certain theorists hold that no one should have any property, but that all ought to have it in common, that the product of human labor should be gathered into one common fund, and that the whole community should be supplied out of that. This is communism. Again, wild theories are floating around, that there should be no laws, that each one should follow the

bent of his own inclinations, and be controlled by nothing, not even by God himself. This is the doctrine of the nihilists, the anarchists, etc.

It is surprising to what extremes the human mind will go when religion has been divorced from science, and all that that implies. A brilliant writer says that the first step from the church is the first step on the road to the denial of all revealed religion and even to the existence of God himself. It is sad to think of the errors floating around, and of the floodgates of revolution opened up to every wind of doctrine when men throw off religion and follow the bent of their own evil inclinations. Thus each one goes his own way, follows his own instinct, like animals. Thus we see that the nations which have thrown off the Church have perished according to the prophecy of Isaiah.

The object of liberty is the good. The good we see in creatures is but an image of the eternal Good, the Holy Ghost. The possession of the good gives rise to happiness. The possession of the eternal Good, that is, God himself, gives rise to the everlasting happiness of heaven. Therefore, this world is but an image of, and a preparation for the other life, and the joys of this life are but a taste of the happiness awaiting us beyond the grave. The things that are good are some below us, some above us. In seeking the happiness derived from the possession of good things, we should always tend towards the things above us, for that elevates us, while if we descend to those creatures below us and place our happiness in them, they will degrade us.

Each faculty and passion in us has its own object, and the possession of and the enjoyment of that object gives rise in us to the different pleasures of this life. Thus the object of the mind is the true ; of the taste, food ; of the eye, physical beauty ; of the ear, musical sounds ; and so of all the other faculties of man. But the enjoyment of the good which follows the possession of creatures without and beyond the boundaries of reason, is bad and sinful. For these human passions are not bad in themselves, but bad in their abuse. Happiness is attached to them, not because of the happiness itself, but that animals and man might be induced to exercise these for the preservation of himself or the generation of his race. Then the exercise of the vegetable and animal passions in us must take place moderately and with reason, otherwise we become worse than beasts. For we never see animals abuse their faculties, for all goes on in them according to the supreme will of God,

who guides them, and that is called their animal instincts. The immoderate use, then, of our animal passions, is the greatest calamity which can fall upon us, for it leads to our destruction in this world, and to the loss of salvation in the other. Two faculties only, the mind and free-will, can be caeselessly used and exercised, and in place of degrading man, their frequent use ennobles and elevates him. For while the object of the other faculties in man are the true and the good, as found in creatures which pass away, the ultimate object of the mind and of the free-will is the True and the Good, eternal in God, that is the Son, and the Holy Spirit, the possession of whom is the ceaseless happiness of heaven.

The mind was made to see the Truth, the Son ; the will was given to man to possess the Good, the Holy Ghost. The creatures of this world having been made as the imperfect images of God and reflecting his own infinite perfections, by them, by their beauty, truth and goodness, we are led onward towards the infinite Beauty, Truth and Goodness of God, the three Sublime Persons of the Trinity. Then as the mind by its very nature sees the truth, so the will by its very innermost essence seeks the good. What is founded in the nature of a thing can never be changed. Thus, the possession of the good, being the direct object of the will, the latter must always seek the possession of the good which is happiness. But God being the eternal, ceaseless Good, the fountain of all goodness, it follows that the will must always seek him. But the will seeing nothing except what the mind proposes to it as good, and the mind not seeing God directly but only dimly now through earthly creatures, while we are in this world, the will does not always and ceaselessly seek him, the eternal Good, because we are often distracted by creatures, which are not the ultimate and eternal Good but its images. Therefore, in the things of this earth the will never finds rest, for creatures cannot satisfy our longings after the Good. Our desires for the good then, are ceaseless and all-absorbing. Therefore, by our very nature we ever and always seek the possession of the good which is our happiness, and following this impulse towards the good. In the same way we are not free regarding the things which are necessarily and by their very nature connected with our final happiness. But we are free regarding all other things, so that we can either reject them or choose them. This liberty, properly called, is the power of choosing or of rejecting.

Liberty, then, is election. The free-will is the faculty

by which intellectual beings seek the good in such a way, that they cannot abstain from seeking it. Now the possession of the good is happiness. Therefore, it at once appears, that the will is bound to seek happiness from its very internal nature and essence, because every reasonable creature was made more especially to the image of God, who is by his very essence, eternal happiness. To partake then, of the happiness of God is the true, last and endless bliss, joy, and happiness towards which every intellectual creature by its very nature forever strives and tends. In this respect the free-will is not free from itself or from seeking happiness. But it is free from every outside influence. For in all other things the will is free to choose or reject whatever is not necessarily connected with, or what does not relate by its nature to our final end, everlasting happiness in heaven. It is true that some men do not always work to obtain the eternal happiness of heaven, because they do not know it, and what we do not know we do not desire. They have not been instructed in the Christian religion and therefore they are ignorant, because the will seeks only what the mind proposes as good or as happiness. Therefore, as their mind does not tell them where is the last and the final good, they know nothing of the happiness of heaven and they place their happiness in the things of this world. That is the case with numerous unbelievers, infidels, pagans, men without religion and with numerous people with poorly instructed minds regarding heavenly things.

There are various kinds of liberty, moral, metaphysical and physical. Moral liberty consists in this, that we can choose between committing sin or not sin; between virtue and vice; between moral good and moral evil. Metaphysical liberty consists in this, that we can abstract from the goodness and badness of a thing and elect or reject it for itself and independently of its good or bad qualities. Physical liberty consists in the freedom to exercise our exterior organs and members. The first is the liberty of doing good or evil; the second the liberty of electing or rejecting anything in itself indifferent, and the third is the liberty of controlling the actions of the body. By not having clear ideas on these subjects many poorly instructed persons make numerous mistakes. They often fall into the most curious and repugnant theories relating to human freedom. Every rebel against society, government, and against the Church, cries out in the name of liberty. Every false doctrine and the wildest theories are first preached in the name of liberty.

It is a taking word with the larger part of any community, and the infidel as well as the anarchist fly to it when pouring forth their frothy, destructive theories. We must stop and see if man has liberty ; for like so many other gifts of God in this our age of doubt, human liberty has also been denied.

Each reasonable being has liberty or is free. For each person, and every human being feels that he is free at the moment he chooses, as well as when he does not exercise that freedom. For, while we do a thing, we feel that we might abstain from doing it. We also know that we must make an effort before we move our muscles and that effort comes from the soul, which by the faculty of the free-will controlls and moves the body. Besides, even when we do not exercise our liberty, by our memory and by a process of reasoning, we are convinced that whenever we acted we did so freely, and that we could have not acted if we had wished. We also know at any moment we pay attention to it, that we possess the power of doing it or of not doing it.

We can command the mind to study and we can keep it at the task, even when we are tired. We can take a walk or stay at home, resist temptation or consent, do good or bad to others. In a word, we are free beings. Whatever all men of all times and countries believe, is the outspoken voice of human nature, and it is therefore true. Now all men have always believed in human liberty. The pages of the histories of every people and nation show us that they ever believed that they had free-will, and although it is a question of great moment, which always excited the study of the wise and good men of every age, yet it is a belief contrary to human ease and to individual happiness. For if man be free, he is a responsible being, and for his every free act he is to be punished or rewarded accordingly. As it is much pleasanter and easier to do what we want and follow our inclinations and passions and not be bound by any law, it would be much pleasanter for each member of the human race not to be troubled with the remorse of conscience, the fear of punishment, the loss of reputation, all of which necessarily follow from the belief in human liberty.

From human liberty then as from its source follows the moral goodness or badness of our acts. For if man is not free, then he is not responsible for his deeds, the remorse of conscience, which is founded in the soul would be a delusion, and the belief in the rewards and punishments of the other life, which each one feels are certain, would be but a

delusion and a mockery of our very nature. But the nature of a thing comes from God, and if nature deceived us, it would be God who deceived us. If man is not free, then, civil laws, and in fact all laws which punish disobedience, are but so many tyrannical acts. In that case, these laws would not oblige in us conscience. But the peace and prosperity of human society depend on the keeping of all laws, and unless these laws oblige us in conscience, government and law, and order would be impossible. The punishment of crime would be an act of tyranny, and God would be unjust for punishing a sinner if he has no liberty.

But all these are founded in human nature and in the nature of things, and if they are not true, then nature lies. But this cannot for a moment be admitted, for nature is true, and cannot deceive, for it is the voice of God who is always just and infinitely true.

Human liberty is so clear, that like the primary truth of human reason, it cannot be directly demonstrated. It has always been believed by all men, and by all nations, so that even those who theoretically deny it, yet in their every-day life and actions they admit the truth of their liberty. It is, therefore, an axiom in morals which cannot be proved, yet it is true, just as there are many axioms in mathematics which cannot be proved, such as the whole is greater than its parts, etc., yet they are true.

We have purposely dwelt for a long time on human liberty, because in this age, when everything is denied, we even find some who deny that man has any liberty. They are called fatalists, from the Latin word which means destiny, luck. The Stoics, Astrologers, fortunetellers, Mahomedans, Naturalists, Infidels, Scientists, Pantheists, Pagans etc., deny the reality of that cry which human nature proclaims so loudly, that man is free and responsible for his acts. Even Christians sometimes forget that this world, and all in it are all directed by the free-will of God and of man. They sometimes say that such things are "alotted to us" during this life, and that we cannot help it. Others of little knowledge, cannot understand how man can be free, when God from eternity saw what he would do. This is because God by his supreme wisdom and knowledge, in eternity and before creation, looking ahead he saw what creatures with free-will would do, and still he left them free in doing so. That error, under the name of predestination, troubles even some little minds so as to unbalance and turn them from religion. Modern infidels, at least in part, believe that

there is nothing in this world but a series of causes and effects, which they call nature. All these phenomena or changes, according to them, succeed one to another with changeless fatality. They deny that God can change any of the laws of nature, or perform a miracle, as though the shoe made by a man was to dictate forever to its maker, and wear him, not he the shoe. Others claim that there is nothing in existence but this visible world and its modifications, some of which are the acts of man. These are the Pantheists, who claim that this world is God and that we are a part of Him. Some of the present philosophers of India, teach that there are two eternal principles in the universe, one good, the other bad. They are, as they always were and will be, opposed and in conflict with each other. Again, some christians teach the total depravity of man which they claim was caused by the fall of Adam, and they hold that human liberty were lost at Adam's fall among the other visible, natural and supernatural he lost, and that therefore we can never do any thing good, but that all our actions are bad. Now, according to them, from eternity God destined some of us to salvation, some to damnation, so that no matter what we do in this life, we must be saved or damned. That is the savage doctrine of the total depravity of man and of predestination.

Some claim that the physical development of the brain, the temperament and habits of vice, etc., tend to diminish or help human liberty. While there is something in this theory, yet they exaggerate and, like all phrenologists, they carry their theories too far. For liberty is situated in the pure spiritual soul, and not in any physical quality of the brain. For the brain is a material or physical organ, like the rest of the material body, it is neither wholly spiritual or entirely material, but rather a compound of the union with body and soul, a compound of spirit and of matter. The free-will being like the mind a purely spiritual faculty, it exercises all its acts independently of our material organs; for it is a faculty of the pure, immaterial spirit or soul which resides within us, and makes us spiritual like unto God. We are then responsible beings, like the angels, because our free-will is purely spiritual like unto those heavenly spirits. For, to say that liberty resides in any bodily faculty or organ of the body, would be to give liberty and free-will to the animals and make them equally free like man and responsible for their acts.

But this no people, race, or nation ever admitted. For

when a beast kills a man no one thinks of saying that the beast should be tried, condemned and hung as they would if it was a human being who did so. Liberty, therefore, cannot reside in the convolutions of the brain. Nor can any special formation of brain, or of any other corporal organ, tell us how much liberty or free-will a man has, because free-will and mind have no special bodily organs like the other lower and sensitive faculties, or powers of the soul.

For the soul has three important functions, mind, free-will and sensation. By the sensitive powers the soul animates the body and uses the organs of the body as so many instruments or organs in order to carry out its operations. By the sensitive powers the soul raises up the materials of the body so that they live its own life. The various sensitive powers of the soul which animate the body or extend, ramify, vivify, and inform the different organs and members of which the body is composed. Without these various corporal organs these sensitive powers can not exercise their acts. Cut off, therefore, one of these organs and the particular operation of that spiritual power is gone, because the bodily organ in which the power was exercised, is destroyed.

But it is not so with the mind and free-will. For these are above and independent of the body. They exercise their acts without the aid of any material organ. Then, the free-will is purely spiritual and does not need the aid of any material organ to exercise its acts. For as the will is the spiritual appetite of the soul, so like its object the pure spiritual good, it is a pure spiritual faculty. For by the appetites of the body we desire the material good in things, so by the free-will we desire the spiritual good in things. By the instincts of rest, of joy, and of pleasure as well as that of taste and of generation we desire these things for the preservation of the body or of the race, so by the free-will we seek the spiritual good in things which are the image of God who is the supreme Good, and toward whom by its very nature the free-will of all intellectual creatures ever tend.

But creatures are not free in all their acts. Thus, the stone is heavy, colored, shaped, and has its modes and accidents ; and it acts and attracts by its very nature. The plant grows, nourishes and reproduces itself not because it is free in doing so, but because these acts are founded in its very life. The animal has the shadow of liberty for it is guided by its instincts and by its senses. Man has liberty and free-will. But like the mineral, and the plant, and ani-

mal, we are not free in all our acts. For we are subject to the laws of gravity, of chemistry, and of all the laws which rule our physical natures. In the same way we grow, nourish ourselves, and the actions of the plant-life within us are not subject to the will. So the generative powers which properly belong to the plant are not directly but indirectly under the control of the will. The animal passions of anger, hate, ambition, stubborness, laziness, etc., are in us and can be held under the command of the will. But as the free-will is a pure spiritual power, which has its root in that pure spirit part of the soul which is above and independent of all bodily organs, so in spiritual things alone we are free and have true liberty. Thus, we are not masters of the mineral, vegetable, or animal functions, but of the spiritual parts of our souls. The more we approach the higher and the spiritual, the more we are free. Thus, we are absolutely and irrevocably bound by the laws of our mineral and physical functions; more free regarding the vegetable powers; have still more freedom and control over the animal organs and our instincts, while our liberty in its highest development is found in the superior and ghostly mind and free-will. But here we are not entirely free. For we must by our very nature seek truth and we must look for our greater happiness. In these two things we are not free, for by our very innermost essence we tend towards God the eternal, everlasting, True and Good.

While we are not free in these two things, we are regarding the motives or the reasons of our actions. For each one, when acting as a reasonable creature, proposes to himself some motive or reason for his actions, and he is always master of that motive. So we can have a good or a bad motive in all and each of our actions. If the motive is good the action is good, but if bad the action will be bad. Therefore, we will be rewarded or punished not according to our actions and words, but according to the motives we had in acting. If our motives are good, no matter what mistakes we may make, we will be rewarded. Therefore, it is impossible to judge the good or bad motives of our neighbor's actions because we cannot see and read his heart. We see then, how unjust it is to judge the actions of others unless we know their hidden motives, and how groundless are the calumnies we often hear of our neighbors.

Man and angel are not free in seeking the truth and the good. But God is free in generating the True, his only begotten Son, and bringing forth the Good, the Holy Ghost, be-

cause he is supreme and infinite in all things and therefore freely and with the most perfect liberty he produces all his acts, and therefore he freely brings forth the Son and Holy Ghost. But in these supreme acts of the Godhead there is law and order. For he is a law to himself, and to act without law is to act irregularly, which is to err and to sin, which is an abuse and which cannot take place in the divine nature.

Each quality of creatures, therefore, leads us up to the better understanding of God. Each created thing exists, that is, has being. In that it shows forth the divine Being who is God. The types and plans of all things having rested in the bosom of God during eternity, they were in the divine Son, and God will freely and with the most perfect liberty show forth the perfections of his only Begotten, and began creation to show forth the awful grandeur of his only Son. In an instant, from nothingness and dark chaos in countless multitudes, sprung forth all the heavenly angels exulting in their pure spiritual natures, each a separate species, in each an imperfect veiled mirror and image of the Son of the Father.

Again the divine mind freely willed, and the earthly and material world came into being; encircling suns, shining planets, whirling orbs, condensing nebulae, all ruled by laws; so many material and crude images of God, each bearing the foot-prints of their mighty Creator. Thus creation was not enough, but it was necessary to continue these beings in their existence that by that they might resemble the Creator. For the creation was a free act of God, by which he shows forth to his intellectual creatures a faint ray of the glories of the Godhead, and without creation he would have remained alone in the hidden secrets of the society of the three divine Persons of the Trinity. These Awful Three form that Family of the Deity, they are alone sufficient to themselves.

But his divine hand still up-holds all things and without this subsistence all creatures would at once fall back into the nothingness whence his awful voice called them at creation. For as no creature can make itself, so not one can continue itself in existence. Hence no creature can exist in itself and independent of God. He alone is the self-existing Being, and all live, and move, and have their being in him. Creation, therefore, not only took place in the beginning but is taking place now and always will, while the undying mind of man and of angel last; for the creative act of God still continues them in their existence and will for all eternity; for

reasonable beings die not and their ceaseless existence is a continual creation.

God then sustains all nature by ceaseless laws which guide creation towards its perfections, that all may chant the thrilling songs which proclaim the un-thinkable wonders of the great Creator.

God is behind and under these laws. He made them to guide creation and they produce their effects to show us in themselves an image of the ceaseless, changeless God, who made them to tell us of himself. But God can change these laws, for he rules them, not they him. Seldom and rarely does he change them, but only when necessary for the greater good of his noblest creature, man. To change one of these laws is a miracle. Some are so foolish as not to believe in miracles, as though they would like to limit God's power.

He is the original legislator and law-giver for all creatures, and no law is just if it is contrary to his supreme and divine reason. A ray of this divine reason is written in the habits, customs, and instincts of animals. It is seen in the circling planets and fiery suns, which people the immensity of heavenly spaces. An effulgence of this reason of God, shines down upon our intelligence, and raises up and enlightens our minds, so we see the reasons of things by the eternal light which ceaselessly flows from the Divine Son, the Reason of the Father.

The free-will of God directing the unreasonable world, as animals, plants and minerals, is called the divine concourse, while the act of God guiding reasonable beings towards their end, is called his divine Providence, because the things below man, not having free-will, are directed by changeless laws, while intellectual beings, as man and angels having liberty and free-will, they were made free. God respects their freedom, but by this, the sweet inspirations of his grace, he enlightens their minds to see the truth, and stirs up their will to seek the good. And all this they do freely. For God crushes not, but elevates. Therefore he kindly acts on our highest and noblest faculties, mind and free-will.—These are the powers which in action compose our reason.

It sometimes seems hard to reconcile the liberty of man with the grace of God. But it is not as hard as it looks. For when you show a child how the answer is found in a sum in arithmetic, and the mind of the child sees it and agrees, or when you point out good from bad, you do not

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take away or diminish the child's liberty, because it has a mind and a free-will which freely agrees with the truth when he sees it, and seeks the good to possess, which is joy. Then God by a secret impulse of his divine grace, shows us the truth, and when we see it, we agree that it is the truth, and the will being enlightened by the mind, and strengthened by grace, then seeks the good proposed by the mind and seeks it freely, and in all this the reasonable creature has a larger amount of liberty than before, because it is better enlightened.

In seeking natural truths God leaves us to our own resources, as we are to use our reason relating to and working among the things of this world. But relating to the things of the other world, human reason alone is too weak, faulty and fallible. For that reason God's only begotten Son came down from heaven to enlighten us in things relating to our salvation. He left a certain constitution for the church he founded, and by which all future generations were to be guided. Now, every constitution must have some authority, in order to interpret its meaning. For the constitution of the church is found in the Bible and in the traditions of christianity. One without the other would be incomplete. The one to interpret that constitution formed and left by Christ, is the head of the church. For the head is always more perfect than any other part of the body. For the human body seems only to live for the head, and it is evident that Christ would not have left his church without a head on earth, and without some authority to interpret his constitution. For this reason God guides the head of his church and keeps him from error, when he is teaching the whole world as the head of all christians, and the interpreter of the constitution in matters of faith and morals. In all other things he is a weak and fallible man, subject to sin, and to all the weakness of human nature.

Then, we have traced the soul through the various physical, vegetable, animal, and spiritual faculties, till we find it possessing in reason and liberty the pure spiritual faculties of the angel and of God. Now, as man is composed not only of a pure spirit, but he also has a body, we must see how the body and soul are united in man. That remains to be the subject of the following chapter.

CHAPTER XXI.

The Union of Soul and Body.

We have considered in the foregoing chapters, the mind and free-will, which both together, form the pure angelic part of man, and which make him a reasonable being, like unto the heavenly spirits, and by which he is especially made to the image and likeness of God. We must consider therefore that man is an exceedingly complicated creature, more so than any other being. For, having a body and a soul, he partakes of all the qualities both of the material and of the spiritual.

By his body man belongs to the world of matter, of visible things composing the sensible world, while by his soul he belongs to the invisible, the unseen world of spirits. By his living body—living the life of the soul, he is like an animal, while on account of his intelligence and free-will, he is like the angel and like unto God. His soul is the substantial form of the body, endowed with all the properties of the substantial form of the mineral, the living principle of plants, and the sensitive soul of the animal. These forms and principles of minerals, of vegetables, and of animals, penetrate, extend, and ramify into each and every part and particle of the material to which they give being. Thus, no spot or part of iron can be found, in which is not also found the iron form, in forming and giving being to the iron ; otherwise that part would not be iron but something else. No part of the living plant is seen in which the living and vital principle of the plant does not penetrate, otherwise it would not be a living part of that plant, but dead, withered, or lifeless fibre. So the living soul of animal extends throughout and into all parts of the animal body or organism, and if each and every part is not animated by the animal soul, that part is dead, and soon corruption will set in.

Thus we see that, the substantial form which, in man, is the human and immortal soul, penetrates to and animates each and every particle of matter of which the body is com-

posed. Therefore the materials of the body, are no more phosphate of lime, but living bone, not oxygen, hydrogen, carbon and nitrogen, coming from our food, but living flesh and blood. That is, the substantial mineral forms of these primary material elements of the food, have given way to a higher form : the human soul. The body, while living is flesh, not the dead mineral materials of which the body is composed. Therefore, when the soul leaves the body at death, that dead body takes on the cadaveric form, and the laws of the mineral kingdom, or crude nature, have their full sway, for they are no more controlled by the soul, which has fled, and soon the body will dissolve into its primary elements. The invisible bacteria, microbes as well as vegetable and animal microscopic life, will attack it, penetrate into it, dissolve it, and fill it with corruption. While the person lived, the soul gave life to that body ; when the spirit leaves it, a thousand forms of invisible beings attack it, and never leave it, until it is returned again into its original elements of dust and ashes. So that, "dust thou art, and unto dust thou shalt return," is always true of the human body, as well as of all other living organisms.

Therefore, we must consider the soul as the substantial form of the body, and that the spirit assumes, takes up, raises to its own life, the mineral materials of which the body is composed, and gives unto them its own life. Therefore, each and every part of the human body, is not to be considered as a part, but as a whole organism, animated by one soul, and by that, and with it, it forms one human being. Soul and body, then are one, not two substances. For man, although composed of two substances, of a spiritual soul, and of a material body, is, nevertheless, one being, one individual, composing one member of the human race. The soul communicates not only its own life to the body, but it also gives its own being to the body. Thus there is only one being in each man, not two beings, not one the being of the soul, the other that of the body. Although the materials of the body, before they were assumed into the body by digestion and assimilation, although each and every one of these materials had its own separate substance and being before digestion, still when they become a part of the human organism, they lose their separate identities, and become a part of the individual man. They are incorporated into the body, losing their own identities, and they partake of that of the being of the man of whose body they now form a part. For each person of the human

race is one, not many, and that oneness comes from the one soul which animates his body. That identity, or oneness of the soul never ceases.

Although, by nutrition there is a continual change of materials going on in us, still we remain the same, because the human soul changes not. For change in substances takes place only in material things which have parts, but not in spiritual things which are not composed of parts. Thus the soul may change in accidental qualities, as in learning, happiness etc., but not in substance, because spiritual substances, as well as all substantial forms, as the human and animal soul, are whole, complete, or nothing, for they have no parts. Thus God remains ever the same, nor can any change of learning, or happiness, or joy take place in him, as in the angel and in man. This explains why we always remain the same, no matter where we are, or how we are. For our identity remains the same, because the soul, which animates our bodies, cannot substantially change, because it is a spiritual substance.

In studying the structure of the human body, we are struck with the wonderful wisdom displayed in every part, even to the most minute particle or cell, revealed by the highest powers of our best microscopes. Everywhere we find order, regularity, harmony, and the most surprising adaptation of means to an end. The soul, by its lower animal and plant faculties, which we call sensation, this sensitive part of the soul, formed, built up, and made this, our complicated body, with all its grace, harmony and surpassing loveliness. The soul, by its sensitive powers, took part after part furnished by the blood, and placed each where it wanted them.

The soul, all unconscious to us, picks out the various materials furnished by the food, digests them, makes blood of them, tears away the useless cells, puts others in their place, dissolves here, builds there, here makes bone, there builds tendons, there skins, here the delicate tissues of the retina, and there the hard unyielding calcareous lime. The soul, unknown to us, takes in by breathing the life-giving oxygen, and throws out the deadly carbonic acid gas. The useless portions of the body are turned into the blood, burned up into carbonic acid gas, the useless parts are thrown out in breathing, by the skin, by the kidneys, and in many other ways. There is then a continual slow fire going on within us, which keeps our bodies warm. That heat comes from the continual chemical changes taking

place within the human body. For the oxygen taken in, while breathing unites with the carbon furnished by the waste portions thrown off and is emptied into the blood. This chemical union of carbon, or coal and oxygen, giving rise to carbonic acid gas, is like the smoke from a fire, that is what is so disagreeable in the breath of another.

There is a fire in us then, differing not materially, but in intensity from any other fire, only it is not as hot as other fires. That fire keeps the body warm. For heat helps all chemical action, and the greatest and most surprising and complicated chemical changes take place within all the living organisms, especially in the human body. This heat aids these chemical changes ever taking place within us. Whence, if the body becomes cold, the organism cannot work, the changes of nutrition cannot take place, and death soon follows. After death the body becomes cold, because the soul is no longer there to keep up the chemical changes and combinations, as during life.

In the lowest kinds of living beings, as in plants, there is but little heat evolved, because in them life is slow. In the reptiles and fishes, there is more heat. The animals are hotter still, while the birds endowed with a very rapid life, their heat is about ten degrees higher than in man, because man's life is not because of the animal organism, but because of reason, which does not use any corporal organ in its acts. Therefore, our bodies are not as hot as those of the birds or insects, whose movements are exceedingly rapid. The organism always changes this heat into muscular movement, somewhat like an engine, but more perfectly. For that reason, the cold-blooded animals are sluggish, and the warmer-blooded the creature, the quicker you will find them in their movements. When men or animals exert themselves more than usual, they become hotter, because this heat is wanted to be turned into muscular movement. Lest the heat should become too great, so as to melt the fat, or cook the tissues, the organism throws out fluids, as sweat or perspiration, so that the evaporation may cool the body. At the same time, many of the waste parts are also forced out through the pores of the skin, so as to relieve the lungs.

All this comes from the soul of animal or of man, and it takes place unconsciously to us. This human body, animated by an immortal soul, is the most surprising machine, the most complicated piece of mechanical art, seat of the most astounding chemical laboratory, that ever existed. No one else but Supreme Intelligence, no one but God could

have adapted such means to an end, such harmony and design, such as we discover in the human body. We did not do it, as it all takes place under the direction of lower vegetable and animal functions or faculties of the soul. We have nothing to do with these surprising phenomena continually taking place within us. Whether asleep or awake, it all goes on the same. Does not this show us God, in his supreme wisdom, guiding all nature with his laws for all creatures, directing order, harmony, and design ?

All these surprising changes and movements in the human body, come from that one immortal soul. For the body without the soul, is dead, and has no life, or vital movement. In reality all movement in the universe comes from God or from a substantial form representing him. For he is the primeval mover of all things, the author and source of all light and heat of the sun, which moves creation, the source and great reservoir of the life movement of creatures, which live on this planet.

In the body we find not one single useless organ, or even the smallest cell, which can be dispensed with, but which will leave the body imperfect. By that part of the soul, called the sensitive part, which is the lowest, or animal part, by that the body is constructed. The body, showing such wonderful beauty, skill, harmony and perfection in every part, shows us in an imperfect way, the beauty of the soul, which made it. Still it was the lower power, or the animal part of the human soul which made the body. If the body, then, is so beautiful, what must be the beauty of the soul which built and made it so ? Wise men have said that the beauty, and the perfection of the soul is such, and so transcendent, that if we could see it with corporal eyes, we would be inclined to fall down and worship it, and take it for our God. But, if the soul is such, what must be the unutterable beauty, harmony, and perfection of God, to whose image and likeness the soul is made ? And, if the lowest part of the soul, that is, the sensitive part, which animates the body, is so superior to material things, as to build from crude mineral substances this organism, and animate this beautiful body ; what must be the superior part of the soul, the mind and free-will of man, from whence flows truth and goodness which we love so well ? But if this is so in such an imperfect creature as man, what must be the Truth and Goodness of God, the Son and Holy Spirit, coming forth from the divine mind and will ? Therefore, as heaven is the possession of, and contemplation of eternal

Truth, the Son, by the created minds, and the possession of everlasting Good, the Holy Ghost, by created free-wills, is it any wonder that no man can ever conceive the happiness of heaven ?

The soul is united to the body, so that it animates, possesses, vivifies, and gives its very being to each and every part, organ, function, and particle, and even smallest cell of which the body is formed. The soul, therefore, made all these organs of the body. In the soul there must be found powers to animate, and vivify each and every cell, muscle, bone, nerve, organ and control the acts, movements, and functions of each and every one of them. Therefore, not a perfection can be found in the body, that has not its corresponding perfection in a higher degree in the soul. Not an organ in us, but which has its own special power in our soul, to animate and control it. The human body, having in it all the mechanical, physical, chemical and artistic sciences, carried out to their highest degree by the mighty hand of God, we can imagine but faintly the beauty and perfection of the human soul. We see the soul, then, as the most remarkable, and as the most perfect creature on this earth. Is it then surprising that Christ would do so much, or that his followers would strive so hard to save this surprising creature from destruction and everlasting loss ? How wise, then, is the church, to tell us to look especially to the cultivation, education and perfection of the soul, to practise virtue, and avoid vice, to be good in this world, so as to be happy in the other world, where the soul will be in peace and joy, amid the happy spirits who dwell with God. Well, then, can we say that temporal and material things are as nothing compared to spiritual and ghostly things.

From the parents the child receives the first material elements, while God creates divinely and by himself the soul, which is to animate the new human body about to be formed. The elements then, furnished by both parents will partake in the qualities of both parents. Thus, of whatever race the parents are, the child will belong to the same race. This resemblance of the child to the parents can be recognized at once by any one. Yet as each is a single and separate individual, no two are exactly alike, for each is a separate person and a separate member of the human race, and each person has his own personal characteristics, although they belong to the same human race, for they represent the different Persons of the Trinity, who although all three have the same divine nature, still they are three Persons, distinct one from the other.

Children usually take after their parents, and we find a general resemblance, among the different members of the same families. Besides this, the diseases, imperfections, virtues and vices are often transmitted from parents to their descendants, especially those characters belonging to the organism. But regarding to the powers of mind and free-will, as these are above and superior to the body and are seated in the pure spiritual soul, we find it different with regard to intellectual and moral qualities. For great thinkers, and writers, and men of powerful minds do not always transmit these qualities to their children. They do not appear so prominently regarding moral virtues, for these are under the control of the will, over and under the moral virtues in the human compound or body animated by the soul. As the first germs of the body came from the parents, the vices and virtues of the latter are often found in the children.

The soul building up the body not only as a house of residence, but as a part of the one individual, and giving to the body its own life and being, it is evident that it will build a body like unto itself. From the external beauty of the body, therefore, we may conclude, that a beautiful soul resides within, and experience tells us that it is so. Thus woman, the last creature God made, is finer, more graceful, and more beautiful than man, because she has a finer, purer and more beautiful soul. For she was made to furnish the materials of the body of the most perfect man, Christ, who was born of the best woman that ever lived. Besides, the first woman, Eve, came from Adam and she represents the Son of God coming from the Father. As the soul is the Beauty of the Father, so woman who represents him, is the beauty of the human race, and therefore, she is always more beautiful, finer, and more refined than her brothers.

The influence of the soul on the body develops the three temperaments we so often meet. First, the active quick, ever-at-work soul is found in the nervous person. The nervous temperament, then, is always at work. People of this character are, "always on the go," always at something, working with the mind, or with some other faculty. These persons are good conversationalists, ambitious, never satisfied, want to go higher, keep everything in its place, are of brilliant mind, have a bright sense of the beautiful, a hatred of vice and are naturally chaste, good and confiding. They are mostly of the Celtic race. In them religion takes a deep hold. If they have faith, grace finds a rich soil and develops

many virtues in their hearts. They are enthusiastic over everything, and they work with ardour at whatever they undertake. They lead their classes and out-distance easily their neighbors in everything. This is the highest type of mankind. The author belongs to this pure nervous type. But they have their failings. They are inconstant, suffer from overwork, are sensitive and the world is sometimes too rough for them.

The phlegmatics are the opposite. They are naturally sluggish, slow, fleshy, easily satisfied, especially if they have enough to eat. Nothing pleases them so well as a good dinner. They let well enough alone, take things easy, enjoy life while it lasts, and are not bothered too much about the future. As they have the animal developed in them to the highest degree, they sometimes have hard work to control their lower nature. They cannot always agree with, or understand those of the nervous temperament, and they get along with those of their own disposition better, because they understand them easier. These never make much noise in the world, because they are too lazy. If obliged, they will plod on, and work, but, are inclined to live from hand to mouth unless forced.

The billious temperament can be easily known by the yellow bile-colored complexion. They are inclined to sadness and melancholy. To them at times the whole world looks more or less sad. They are subject to periodic spells of down-heartedness. They work, often faithfully, are ambitious to get along in the world, and often succeed. Their mind is not as brilliant as the intellect of the nervous or as sluggish as that of the phlegmatic.

The sanguinary temperament may be known by the red complexion. They are usually ambitious, hopeful, resist and overcome difficulties which would discourage and dishearten others. They are tenacious in their ideas and what they lose on the side of natural talents, they make up by application. Like the billious they are inclined often to be silent and can keep secrets, which the confiding nature of the nervous will let out with "don't tell."

We often see these four temperaments developed to the highest degree, so that the members of the same family will be of so many different temperaments, in fact children will often show us the types of the different races of men, all in the same household, belonging to the same family. The Europeans are the nervous, the Asiatics the phlegmatics, the Africans the billious, and the American Indian the sanguine,

developed into the utmost degree. When individuals of the same temperament become acquainted, they understand and like each other better than those of different temperaments. This explains the similarity of dispositions we often find among certain people, and the unexplained esteem and affection they bear for each other. Thus the bodily organism acts on, and influences the soul so as to cause these different temperaments, because soul and body form one individual person.

Let us understand how the soul and body unite in one nature so as to form one man. The soul is spiritual, the body is material. A great gulf separates them, as St. Thomas says, "nothing spiritual can act in a corporal thing." How then, does the soul act on the body and how does the body influence the soul when they by nature are so different? Let us go to chemistry. Iron is a solid, oxygen is a gas. How much they differ! How far they are removed one from the other! Yet they unite and form oxide of iron which is iron rust, different both from iron and from oxygen. So sulphur, a solid uniting with hydrogen, becomes a gas. Hydrogen and oxygen, two gases uniting become water, a fluid, while the two gases, oxygen and nitrogen, uniting form a gas, air. So we see that in numerous cases, when totally different materials, unite with others, they completely change their nature or acquire entirely new qualities, or form other mixtures having different qualities. Now this is the way the soul unites with the body. Both soul and body united together form a new being called the organism, the human body. But there are three kinds of souls on this earth, the soul of the plant, that of the animal, and the human and immortal soul. Uniting with matter they form the organism of plants, of animals, and of man. The soul or living principle of the plant is above and superior to the physical forces of the mineral forms of nature. It contains in a higher degree all the physical forces. It makes use of these chemical and material forces and bends them to its own purpose. Thus it uses chemical affinity to form the tissues of wood and bark. It uses capillary attractions for the circulation of the sap. It takes the carbon from the air while it breathes out oxygen by the leaves. So it uses all the material forces of nature for its purpose to complete its own self and fulfil its purpose and its destiny in nature. The animal has all the perfections of the plant and more, that of sensation and the five senses depending on the nervous system.

The union of soul and body in man is not only a material

but also a substantial union. For we find that we not only form one nature, but also that the soul is the root, principle, and source of all our acts, feelings, sensations and thoughts. We feel within our innermost nature that soul and body are united so as to form in us one nature. Soul and body, differing so much one from the other, the one spiritual, the other material, yet they both together unite in us so as to form a new being differing from either the spiritual or the material. Both together make one man. "Man is said to be of body and soul and from these two a third arises, which in man is neither body nor soul," says St. Thomas. These two things or substances, body and soul, thought and extension, resistance and movement, differing so far one from the other, yet they are so intimately united, without at the same time being confounded, that they appear identified together, and they both form one compound or mixed being we call man. As water, a fluid, is one, yet composed of the two gases, oxygen and hydrogen, as air is a gas composed of the union of oxygen and of nitrogen, as the oxides in chemistry are simple, yet formed of double materials, so man is simple in one person and one nature, yet he is double, or composed of body and soul. He is both of the material and of the spiritual kingdoms. He is of spirit and of flesh. He is a substantial compound of these two, so that from the union of these two, the spiritual soul and the material body, arises one single being called man. A machine, a watch, a steam engine, are made of many parts, substances, and the machine is one. But only improperly are they called one, for their parts lose not their separate natures so as to form a new being. The union of all these parts in the machinery is but accidental. They are one only inasmuch as all these parts are united to produce one effect and all tend towards one and the same end. The substances of the different wheels, cranks, screws and parts do not change. The way in which material things combine mechanically, differs immensely from the way the soul and body unite in man.

The chemical combinations of diverse materials, where their substances are lost and confounded together to form new compounds, as hydrogen and oxygen to form water, oxygen and nitrogen forming air, and numerous other combinations, all these are so many figures of that astonishing union of soul and body in us. For in man the body cannot live without the soul, because the life of the body comes from the soul. In us the flesh is human flesh, neither the flesh of an animal, nor is it a mineral compound. It is a part of our

inmost nature. It is not like our clothes, or our house which are only our accidental coverings. The body and soul in us both together make or compose our living flesh, our animated body. We are not a soul alone or a body alone, but a human being, the product of the union of both soul and body. Yet these two are so closely united, that where, the living flesh is there is the soul. In materials formed by chemical unions and combinations, we cannot find the slightest trace of one element without finding there also traces of the other elements of which the material is formed; not even a ray of light which is so fine and piercing can separate the elements of air and water, so in the living bodies of animal and man where is the material parts of the body, there is the soul. Thus the soul is in each part of the whole living body and the soul is whole and complete in each and every part of the body. Where the soul is not, that part is dead and in that case it acts as an irritating foreign body like a sliver of wood or iron driven into the tissues of the body. We see that in wounds, in cases of dead bone, in boils, abcesses, and in troubles of that kind.

The soul and body, therefore, do not unite as two substances in accidental contact, that is, both still retaining their natures like the various parts of a machine. Both, soul and body unite more perfectly than any chemical mixtures or unions, such as an acid with a base to form a result, as hydrogen and oxygen to form water, or other chemical unions of that kind.

Thus there is a great analogy between these chemical mixtures and the union of soul and body. Our body is material while the other, the soul, is spiritual, yet both united they form the living man. But man is neither spiritual nor material; he is both, yet he differs from both. He is a living body, that is, a soul and body in one nature, one flesh. As the Evangelist says of Christ, "and the Word was made flesh," thus the human soul animates the material body of man. Then we give to the material body the life and the qualities of the soul, and to the spiritual soul we attribute the qualities of the body. The body then has feeling which does not belong either to the soul alone nor to the body alone, but to the living body, the compound of both formed of the union of both, that is, the organism resulting from the union of body and soul. The organism is not entirely immovable like crude matter of the mineral kingdom, but it moves itself. The blood, the muscular tissues, the fibres, the bones, etc., although they are composed of carbon, lime, oxygen, hydrogen,

etc., yet in the body they do not show the actions and qualities of these elements of the mineral kingdom, for their actions are controlled by the human soul, which is above them in the rank of creation.

All this throws light on the union of God and man in Christ. For, as from the union of body and soul in us comes man, so from the union of God and man comes Christ. St. Thomas says: "The person of man is a mixture of soul and body, but the person of Christ is a mixture of God and man." There is then in Christ a mutual exchange of properties. Then as we can say: Christ is God; Christ is man; God was born of Mary; a man is the Son of God the Father; God appeared on the earth, lived, died on the cross, the same is now the Lord of Glory, so in the same way we can say that man is a spirit; man is body for he is both at the same time a spiritual and a corporal being.

But in Christ there was a union of two natures, one the nature of God, and the other the nature of man in one Person, that is the Person of the divine Word, without a mutual interchange of being, and of qualities, as in the union of human soul and body in us. Therefore we cannot say of Christ as man, what we say of Christ as God. Thus, we cannot say that the human nature of Christ is everywhere uncreated, for that belongs to his Divinity, nor that it is eternal. On the other hand we cannot say that his Divinity is bounded, for that belongs to his humanity, weak suffering, subject to death, etc.

In Christ there was only a union of the human and of the divine nature in one Person, while in man there is a union not only of person, but also a union of natures, material and spiritual, between soul and body, making one being, man, differing from neither the spiritual soul, or the material body. So we say that man has a body, sensitive, active, animated by the soul, and possessing movement, that the soul is impressed by the surrounding objects, through the senses, that it exists in a place, that it has sensations and feelings. Thus we give or attribute the qualities of spiritual things to the body, and of material qualities to the soul, because the soul and body uniting in one nature, communicate one to the other the qualities of each. These different qualities are found in the organism, or human body. Here we have a preparation for the Incarnation of the Son of God. For as the human soul does not give all its perfection to the body in man, because it gives only sensation, the five senses, but gives not to the body the acts of the pure spiritual mind,

and free-will, which are above the body and belong to the pure soul, so the Son of God does not communicate his Divinity to his human nature. The nature of man and the nature of God, do not unite in one nature, as Eutyches formerly supposed, but they remain separate, both united to one Person in that one Christ. God and man, therefore, remain distinct in Christ. Whence we cannot say that in man the body thinks or wills, but the mind thinks and the will desires, while we can say that the body alone is heavy, has size, shape, color etc., because it still preserves many of its physical qualities which belong to the mineral kingdom.

Thus, when the soul by growth and nutrition assumes and raises up to its own life the various dead materials of which the body is composed, these material substances do not lose all the qualities of the mineral kingdom, but only a part. Thus, we by our bodies are subject to attraction, to electricity, etc. We still exist in time, place, space, and we attract and are attracted by all the rest of the material things of the universe, just as these material parts of our bodies were, before they became by nutrition a part of our natures. The soul assuming them by growth and nutrition, and bringing them into its organism to form a part of the individual body, gives these materials only a part of its own life. All the other lower forms which made these things what they were, before being taken into the body, all these substantial forms were overpowered by the soul, the substantial form of the whole body, and all the forces of nature, are bent to the purpose of the soul, which controls them by nature and power, because it is above and superior to them, in the rank of creation. These materials, are hereafter to form a part of man, to compose a part of his nature, to live by the life of his immortal soul.

All those materials with the soul, form the human compound, we call man. What we say of the human body, but in a lower degree, we also can say of the various animals and vegetable souls, and living forms below man. But the soul cannot exercise many of its acts which belong to the organism, without the use of these material organs which compose the body. The whole body, in fact, is made of organs, which the soul uses to complete its animal and vegetable life. Every muscle, nerve and organ has its own purpose, end, and function, and nothing is found useless in the whole system, whether of plant, animal or of man, for God who made them, does not work uselessly.

Sensation and the five senses, have their root neither in

the soul alone, nor in the body alone, but in the organism made of the union of both soul and body. The organism is composed of the animated body, and of the spiritual, but incorporated soul. The organism then, is a compound of soul and of body. The organism of plant or of animal, makes the complete plant or animal. But the body does not make alone the complete man, because there is a part of man, a pure spiritual part, the mind and the free-will, which is above the organism, which lives independently of matter and forms its ideas, desires, and acts, independent of, and without the organism. That forms man's reason, his highest, and his immortal part. The soul of man, then, like the soul of the plant, makes use of the physical forces of nature, to grow, to nourish his body, and to reproduce his kind. The human soul also uses the nerves, the five senses, and the other parts of organisms like unto the animal. These varied faculties, activities, and powers of the mineral, of the plant, and of the animal in man, do not come from the soul alone, nor from the body alone, but from the organism, that is, the body animated and vivified by the soul. For the body alone cannot feel or see, neither can the soul alone feel and see. Nor can material things act on the soul alone, for nothing material can act on the spiritual. But the organism or human body, being composed of both soul and body, united in one nature, preserves sensation, has feelings, and sees all the objects which fall under the five senses.

This St. Thomas expresses clearly, saying: "The sensitive soul has of itself alone, no operation, but every operation of the sensitive part belongs to the organism. But within us, we feel that there is but one simple principle, which is the last seat of all our feelings and sensations. That is the one soul within us. The powers or the organs which receive those sensations are many, yet there is only one receiver, that is the soul. For example, I see, feel, hear, am hurt, am pleased, am sad. I move, run, talk, as well as eat, grow, and have many other sensations. Therefore, there is in us, only one living principle, the soul," the source of all activity, in every individual person.

The complete organism then, makes the plant or the animal. Without the organism, the plant or animal soul cannot exist. Destroy the organism, and you destroy the plant or animal. Without the organism of the body, man cannot exercise any vegetable, or animal faculty, or feeling, or use any of the five senses, for they are a part of, and de-

pend on the organism. But he can use his mind and free-will, for they do not depend on the organism, for they are wholly spiritual like the angel.

But the soul and body are two different things, and sensation is one and simple, because the soul and body unite together to form one nature or person, in each individual man. Therefore, when I feel pain in my hand, it is the flesh animated by that one soul, which is the seat of the pain. The flesh may have once been of the mineral kingdom, and it is composed of many different materials, but now it is one, for it is animated, vivified by one soul, informed, and lives the life of my living spirit. Then sensation is one, not divided into many. With his usual penetration, St. Thomas says: "It is impossible that many different things have one and the same operation. But we say one operation, not relating to the end of the operation, but on the part from whence the operation proceeds. For many men together can tow a boat, and then the actions of all have one end. But on the part of those towing, there are many men, and therefore they give so many different impulses. For when the act follows the form and the power, it is necessary that when there are different powers, that the actions are different, and although there is an operation which belongs to the soul, in which it does not participate with the body, as the acts of the mind; there are, nevertheless, certain other operations belonging to it, and to the body, as to fear, to get angry, to feel, and other passions of this kind. For as these operations take place according to certain modifications of the body, it is evident that they belong at the same time, both to the soul and to the body. It is necessary then, that from the union of soul and body, that there should arrive one being, common to both." That is the human body or organism.

Sensation or the operations of the five senses, is essentially one in itself, and that shows the unity, simplicity and indivisibility of the soul. The body, in which sensation is felt, is composed of many substances, and is formed of many parts, but it is animated by one simple, indivisible and spiritual soul. I who feel the many sensations within me, am not many, but I am formed of a corporal body composed of many members, but animated by one simple, spiritual, indivisible spirit. The principle which fills them, is that one simple soul.

The idea in our days, has spread especially among scientific men that, the soul resides in the brain, and that there

in the brain, through the nerves, all sensations are communicated to the soul. This is wrong. The soul is immaterial and spiritual, and the brain is material. The material brain cannot act on the spiritual soul, no more than any material body can act on a purely spiritual substance. The material acts on the spiritual, in living beings or plants, animals and man, because the life principle in them and the materials of the body, both together, are united in individual and in one nature, which we call the organism, which makes only one being, although it is composed of spiritual and material beings when separated, yet together they both form but one living being. The soul of the animal and of man has two great centres of action, the brain and the heart, one the seat of the nervous, the other the centre of the muscular systems. The soul is not material, but purely spiritual. Therefore it has none of the qualities of matter, as to be in a place, to have shape or color, etc., as all these are the properties belonging to material things, of the mineral kingdom. These material properties, as shape, size, figure, color etc., act on the five senses. A spiritual being, then, not having such properties, cannot be seen by the senses. A spirit, therefore, is entirely invisible, intangible and cannot be seen or perceived by any of the senses, because it has no extension, weight, shape, or any other material property. The soul, then, is in every part of the whole and complete body. A terrible mistake of this kind leads unlearned men to deny the existence of the soul, because they cannot see it, or because the doctor or the student of anatomy cannot find it, when dissecting the body.

The soul, then, gives unto the body the power of sensation, that is of feeling its various sensations, and by the five senses of perceiving other surrounding bodies. By its natural union with the material body, it receives these material impressions from corporal sources. It is extended, inasmuch as it is united with an extended body. Thus, oxygen, hydrogen, nitrogen and other gases, retain their elastic properties till they unite with metals. Then they lose their gaseous properties and partake of new qualities, different from other gases or solids. The oxides, that is the results of the unions of oxygen with certain metals, preserve the nature of the two beings, or gas and metals making them. They differ in some things, and are the same in other respects, as the primary elements of which they are composed. Thus it is with the soul and body composing the human organism, the living body.

False ideas on these important questions for generations have passed in modern science as axioms. For many scientists, while having extensive information relating to facts, and natural phenomena, lose or never learn the true principles here laid down. They sometimes deny the spirituality of the soul, because they think that they see nothing in the organism of plants, animals and man, but the various phenomena of the forces of the mineral kingdom. Hence, to combat that error, Pius IX. declared that "This doctrine stating that there is in man one principle of life, namely, the reasonable soul, from which the body also receives its movement and all life and sensation, is the most common in the Church of God. It is the teaching of many, and of the most approved Doctors, and it appears to be so closely united with the dogmas of the Church, that it is the only true and legitimate interpretation, and therefore it cannnot be denied without an error in faith." (Bref. ad Ep. Bres. Ap. 30, 1860.)

In man, therefore, the material and the spiritual lose their different identities, and from the union and composition of the body and soul arises that one nature, the one creature, man. As in the various chemical unions, two or more materials may unite, but when they do so, they lose their physical identities, and compose another new and separate substance, having some but not all of the properties of the original elements, so body and soul in man retain some, and lose others of the qualities they had before this union took place. Thus the human body still preserves the material and physical qualities of shape, size, weight, inertia, etc., while the soul still remains a spirit. But the soul acquires a new property, that of being in place, which does not belong to spirits, confined within the limits of the material body in having united to it a material, physical body, having the animal feelings, sensations and passions which reside not in the body alone, nor in the soul alone, but in the compound arising from the union of both, soul and body, that is the organism.

When we understand the nature of this union of soul and body, we will then better understand that most wonderful of all unions, the union of God and man in the Incarnation of Christ. The soul of man unites with the body in such a way that they are partly compounded together, and absorbed one into the other, so that they each lose themselves in the compound, and in this they compose one individual creature we call a human being, a man. But in Christ there is a union of two complete natures, the nature of God, and the

nature of man. But in Christ one nature is not confounded in the other, as the materials of the body and the soul in each man. He still remains the same God, and he still is a complete man. His human nature is not absorbed up into the Godhead, but he remains a complete man, remaining as he was and always will be, the eternal Son of God.

There is in each man, therefore, an immortal spirit and organized matter, but both of these are so compounded, and so closely united, that they compose but one nature. But this same human nature in Christ remains the same as in any other man, and the divine nature assumes it, raises it up to its own eminence to the throne of the Divinity and leaves it still like the human soul and body that there is in each of us. This is the deification of all creatures, the ennobling of all the universe, the exalting of all creatures by the union of God and man in Christ. For as man is the compendium of all the different creatures God made, as all perfections from the lowest rock and unformed dead earth, to the highest heavenly spirit are all realized and united in man as the types and perfections of every creature, and of all nature as found eternal, and infinite in the Son of God, the divine Plan of them all, so this same Second Person of the August Trinity, this same Plan of creatures, this same Son of God unites himself to all creatures in the human nature, the body and soul of the God-man Christ, which he assumed, raised to the awful dignity of the Deity, in the mystery of the Incarnation.

From the union of soul and body then, we are led on to a better understanding of the ineffable union of God and man in Christ. For while the body of man arises from a substantial material and personal union of the soul and body so that from the spiritual soul and the material body there arises one individual man, in somewhat the same way the human and divine natures were united in Christ so as to form one person, one individual, the Son of Mary and of the Father.

The soul and body naturally uniting in every man lose their separate identities and make the organism a human compound called the body, which is neither spirit nor matter but rather composed of both. But in Christ the divine nature did not lose itself in the human nature nor the latter confounded with the former, but in him the human and divine remain always and ever distinct and separate. Thus, he always remained God, but he was man only from the moment of his Incarnation. The divine nature remaining

complete in him did not lose any of the divine attributes, and his human nature in him being complete still preserves all the qualities we find in other human beings.

Therefore, Christ was man and God. He received his divine nature from his divine Father, from whom he was generated from eternity and by whom he is now and ever will be generated. He received his human nature from Mary his Mother, from whom he was born like other members of the human race. Therefore, he had no mother in heaven nor father on this earth. His conception was miraculous and beyond the laws of nature. The holy Spirit formed his body from the purest blood of the Virgin and he was made man like unto one of us. Being the God-man, he had a divine will and a human will, a divine mind and a human mind. He had a perfect soul and a complete human body. All the members of that body as well as all the powers of his soul were developed to the highest degree. His body and soul were just like ours except more complete and more perfect, because he was "beautiful above the sons of men." In his bones and in the materials of his body were found the qualities of the minerals. He also had the powers, qualities, and faculties of the vegetable and animal; and in reason and in his free-will and mind were the perfections and natures of the pure angelic spirits. As man is a compendium and a resumé of all creation, as Christ was the highest type of mankind, so in him are all perfections of each of the great divisions of the minerals, the vegetables, the animals, man, and angels. Thus, when Christ became man, when he espoused our fallen nature by his Incarnation, he raised all creatures to the throne of the deity. Thus, each creature finds its highest type in Christ now sitting on the eternal throne. As man, then, he is in the highest place in heaven, co-equal to God his Father, and he is God.

Now, as his human and divine natures remained separate and distinct, how were they united? We must remember that the divine nature and substance did not change nor did the divine nature take the place of the human soul and animate the body of Christ, because in that case he would not be a perfect man, because he would have had no human soul. But soul and body make human nature. In that way we are all alike in having each a soul and body. But something else is wanted to individualize this soul and body, which alone makes human nature in general and which cannot be found alone and separate unless really individualized. That thing wanted is the human individual, the human per-

son. Now each member of the human race has one person. That is the "I" or "you ' in reasonable beings, the "it" in creatures without reason. In God there are three Persons, one of the Father, the other of the Son, and the third the Person of the Holy Ghost.

At the Incarnation Christ assumed simple human nature, that is, a complete body and soul but without a human person. In place of that human person, which naturally belongs to each member of the human race, he put in the place of the human person the Person of the divine Son, the second Person of the Trinity. Thus each one of the children of Adam has a person which upholds body and soul, which individualizes their human nature, and makes each individual one and distinct from all others, one separate and distinct individual differing from all others. In Christ that was not a human person as in the other members of the human race, but it was the Person of the Son of God. Thus, the human and divine natures in Christ are united in one Person. When speaking of the Son of God, that which we mean by "he" means the Second Person of the Trinity; in Christ, that which we mean by "he" is the identical same Person of the Trinity.

Therefore, Christ's soul and body belong to the Second Person of the Trinity. They are the soul and body of the Son of God. They are his own and more a part of him and closer united to him than any thing ever could be united in all creation. No union that ever existed could be closer or more intimate than the union of the human and divine in Christ. Here the Creator and the creature espoused each other. Thus, that which we express by "you" or "he" in Christ meant the Son of God and the soul and body in him contain the source in which all creation found their types, and models, and plans according to which they were created. Then is it any wonder that the center, head, model and Lord of the Church is that same Christ, God and man? Are we not right in worshiping him the Lord of Glory? Through him alone are we to enter into the haven of bliss and of everlasting joy.

Human nature, the body and soul of Christ being a part of him, being himself, whatever he did through body or soul or divinity, he, that is the Person of the Trinity, did. Then all his sufferings, passions and prayers, and even death itself belonged to him. They were of infinite value because they belonged to the infinite Person of the Son of God. Thus, when he took our sins upon himself and expi-

ated them on the cross he payed a debt of infinite and of priceless value. Therefore, one drop of his blood, one instant of pain, one moment of suffering would have wiped out all the sins of an infinite number of worlds like ours. His redemption, then, was of an infinite value, and extends to all men without regard to race, or color, or regardless of their iniquities if they will only come and draw from the inexhaustable fountains of the Saviour.

That union of the soul and body in man is expressed by the words: I, me, you; I do not say my body or my hand writes, but I write; you do not say your soul or your mind reads these words, but you read. Therefore, each human being is one. That we express by saying that each member the of human race is a person.

Let us understand what is a person. Each thing which exists is called "it." Thus we speak of a stone, of a plant, of an animal. Behind and under each individual thing, is its complete being, which we call "it." But when we speak of individuals of a reasonable nature, we do not say "it," but we call each a person. Thus the soul and body unite to form one person. As St. Thomas says: "The person of a man is a mixture of body and soul. In man, from the union of the body with the soul, the person is formed." It is not necessary to enter into further explanations, as each one knows that he is one person, not many; that the simple, active, living soul within him, is covered with a visible and sensible body, that within him is the living principle, which understands, thinks, moves, feels, which is the "you," the "me," in each one of us. That is the human person. But that I, that you, that me, does not mean the soul alone, or the body alone, but the one human individual made up of soul and body, united together to form only one individual. Yet as the soul is the principle of life, and the most important part of man, the human person is found rather in the soul, than in the body, and after death it resides in the soul. But the soul without the body is not complete according to its nature, for the soul was made to animate a body. Besides, without the body the soul cannot exercise many of its acts, as those functions belonging to the vegetable and animal kingdoms, which reside in the organism. The body is the instrument of the soul, but it is a substantial instrument, not an accidental instrument, like the pen I am using. The finer the instrument, the better work we can do. Therefore, a finer body is a sure sign of a beautiful soul within. You see that by the experience of everyday life,

and that is the foundation of the science of phrenology, that is reading the soul from the body.

Descartes, who unfortunately separated the soul from the body, places the I, or the person, in the soul alone, inasmuch as the soul thinks. He says that to think, is all the soul does. Therefore the person is altogether in the soul. That error is taught by many of his disciples. Kant thinks that the person is in man's conscience. He thinks that there are two persons in us, one existing in the mind, reflecting on itself, the other reflecting on exterior phenomena. Trying to reconcile these two, Romini thinks, that the person in man, is not the soul or conscience alone, but that it is composed of both, or that it is our conscience in action.

This is all false as common sense tells us, that what we mean when we say I or you, means the whole individual, composed of soul and body taken together, and forming the one complete man, I or you. The body and soul therefore, unite in man, so as to form one man, one person, which is expressed by the words, I, you, he or she, meaning one individual person of human nature.

In beings of the mineral, vegetable, and animal kingdoms, what we mean by "it," that is the foundation of each individual thing. The scholastic writers call this the subsistence, because the very nature of the creature, as it were, rests on that. The "it," or the subsistence then, is the foundation of the creature. We may say that it upholds the essence of the thing. The essence of a thing belongs to its nature in such a way, that without its essence, it cannot be. Therefore you know what we mean when we say such a thing is essential to any thing, for without its essence it would cease to exist. Each thing then, has its subsistence and its essence. But in God the subsistence and the essence of his divine nature are one and the same. Only in creatures do they differ, because creatures are imperfect and can but imperfectly represent the Deity.

That angel of the schools, St. Thomas, says "the person or the I, is that which is the most perfect in all nature, namely, the subsistent of a reasoning nature." "The person is nothing else than the individual substance of a reasonable nature." Here the individual is that which is one, existing, complete and alone, separate from all others, for the individual is "that which is undivided in itself and divided from any other." The idea of an individual, therefore, carries with it two things; existence complete in itself,

and the property of belonging to a certain nature. The subsistence, that which we call "it" in things, or person in intellectual beings, individualizes all existing beings, and makes them one, no matter to whatever particular nature or kind they belong. The subsistence or person in intellectual beings makes them one, while the nature is that according to which they were made. The individual is one, while the nature is universal. The individual is the one which we see, while the nature is the general type or plan which we see by the mind, according to which each being is made. The individual is founded on the subsistence, while the universal plan or type, according to which its nature was made, is in the mind of God, that is the Son. The nature of each created thing is the universal and eternal type or plan, in his eternal mind, that is, each was made like unto the divine Son. Infinite and countless are the individuals which can come forth, created from nothing for they are made after the plan and the type and the specifications in the mind of God.

That which we mean by the "it" in lower creatures, and the person in reasoning creatures, the Greeks signify by the word hypostasis, and the Latin by suppositum or subsistence. These words mean to uphold, because physically and logically, that which we mean by it or person, upholds and sustains the whole being and individualizes the nature which is universal. For that reason we always say it, he, or she, and by that we mean the hypostasis, the suppositum or the person, the individual, single, simple creature, having one it, or he, or she. As complete individual substances exist alone and by themselves, thus it belongs to them to act through and by themselves for nothing acts unless it first exists. They are called substances. Thus motion, color, shape, heat, etc., do not exist or act by themselves, but they exist in, and act by the substances to which they adhere as so many modes or accidents. For they are not substances, but only modes of substances. Therefore, they have no subsistences, like substances. Then each individual substance of the lower orders of beings, as the minerals, vegetables and animals have not their acts under control. Therefore we say of them, it and they. But individual substances of reasonable natures, as men and angels, have control of their acts. They have liberty and free-will, and therefore we call the foundation of each a person. That is a higher and more dignified name, for they are each an individual of a reasonable nature. Personality therefore belongs only to

men, angels and God himself. A person, then, is an individual of a reasonable nature. A person is a concrete, a unit, a single individual of a reasonable nature, all complete in itself, and having reason and free-will. To the person alone belongs all its acts, perfections, qualities, and all the attributes which are found in it or flow from its nature. The person then in man is neither the soul nor the body, for both soul and body belong to the person. The being composed of soul and body is the human person.

We have purposely dwelled long on the idea of person, so as to show the remarkable agreement between science and religion in this respect, both regarding the Incarnation of Christ and the mystery of the Trinity. Remember that the person of man is neither the soul or body, for both the body and soul belong to each one, for they compose human nature, and human nature is individualized, made one and concrete by the person which each member of the human race has, and which we express by the word I, you, or he. In Christ there was no human person, but simply a body and soul like ours, and in place of the human person which belongs to each one of us, he placed the Person of God, that is, the second Person of the Trinity. Human nature which is composed of body and soul alone, and without a person was individualized by this Person of the Word of God. Thus in Christ the Person of the Son takes the place of the human person which each one has.

Therefore, that person which we express by the word I, or you in each one of us, in Christ was not human as in us, but divine, that is, the person of the divine Son. It was not the person of a man, but the Person of God. As all our actions of soul and body and all we do, we attribute, not to the soul or to the body alone, but to the person individualizing each one of us, that is, to you or to me, so the acts of Christ were not the acts of a simple man, but the acts of God. The acts of man are according to the dignities and the qualities of the person, so the acts of Christ were the acts of human nature united to God, in and by the Person of the divine Son. God cannot suffer nor can he die. But the human nature can suffer and die, and the human nature of Christ suffered and died. But the acts and the sufferings belong to the person and have a value according to the person. But the Person of Christ was the person of an infinite God, that is, the Second Person of the Trinity, and therefore, the virtues and sufferings of Christ had an infinite value.

As man is composed of soul and body united in his one human person which alone makes him concrete, and individualizes his human nature and makes it exist, so Christ united to human nature in that one Person of the Son of God. Therefore, Christ is a complete man. His body and soul were born of a woman, a daughter of the race of Adam, but his Person was the Person of God, that is, the Second Person of the Trinity. Thus the mystery of the Incarnation is lighted up with a new brilliancy.

The mind alone, separated from material things takes no notice of time. All then is present with it. Thus when we think or study deeply, we take no notice of the flight of time. Everything is present to the mind. Therefore, when our soul after death is separated from the change of material things in this world, then we will spend our eternity, which is the ever-present with God, in the deepest study of his infinite perfections. Then that infinite Beauty, Truth and Goodness will appear more clearly to us, and we will never exhaust the boundless depths of God during his eternity.

As we bring forth truth, by the workings of the mind, as we bring forth love by the free-will, so God brings forth Truth by his mind, and Love by his will, and these are the three adorable Persons of the Trinity, the Father, Son, and the Holy Spirit. As every perfection must be in God, as personality is a perfection of created minds, so the Father, the Son, and the Holy Ghost are three Persons. But as there is only one human nature in this world, although there are millions of persons belonging to that one human nature, each a member of the human race, so there is but one divine nature in God, although three divine Persons.

Action of some kind is the very nature of beings. Each creature acts according to the laws of its nature, given it by the Creator of nature. Thus movement, attraction, light, heat, electricity etc., are the actions of the mineral kingdoms. Growth, nutrition and reproduction are the actions of the vegetable kingdom. The sensations, the senses and movements, are the actions of the animal kingdom. All the foregoing, with thought and free-will belong to man. The angels have a higher and more perfect manner of thought and free-will. The acts of creatures differ from their natures. But in God the acts of his mind and free-will do not differ from himself, his acts are the generation and procession of the Son and of the Holy Spirit, in every way like unto himself. God is the purest act. God is all act. His sub-

stance and his acts are one and the same. He is the infinite Act. Thus attraction or movement hidden and slow in the mineral, is higher in the plant, more perfect in the animal, more rapid in the thought of angel and man becomes infinite in God, that is, in the procession of Son and the Holy Ghost. God's nature, then, is the infinite Act. We know how our own mind is ever in action, while we are awake and that it is still active, when we are asleep by breathing, and the circulation of the blood. The nature then of a spirit is to be always in action. Thus the angels never sleep, for the happiness of creatures is to act. So God is ever active, and his act is the generation of the Son, and the procession of the Holy Spirit. All action in nature, comes from God or from spiritual beings, for the nature of material things is to rest, till moved by some power outside themselves.

Thus all action in the human body comes from the soul which animates that body. So all movement and all action in the world comes from God the Creator, who in the beginning gave it motion which is still continuing in the universe, as the twinkling stars, the encircling plants, the laughing brooks, the smiling fields, the blooming flowers, the thinking soul, all comes from God, all sing his ceaseless praises.

The soul, complete and entire, dwells in every part of the body as the substantial form of the body. It is, therefore, no more in the brain than in the eye, or in the hand. The soul is whole and complete in the whole body and whole and complete in every part of the body. It is in the brain to send out orders by the nerves to the muscles to move, and it is also there to receive the impressions received from outside objects and which we call sensation. It is whole and complete in the stomach to digest, in the ear to hear and in the eye to see. These are the various organs, which the soul uses to perform its numerous operations. If one of these organs were cut off, or destroyed, the soul would not be cut because it has no parts, but its instrument, that is, the bodily organ would be severed. Therefore, it could not exercise that power for want of its material organ or instrument. The soul cannot be seen or perceived by any of the senses, for we can see only its effects, because it is a spiritual substance which cannot be seen by corporal senses, as it is in its nature above the corporal. Thus we cannot see the air, for most of the gases are invisible and we perceive only their effects. Thus it is with all spirits, they are above and invisible to the senses.

The soul, then, is unseen, and always will be invisible to

the five senses, and no spirit will ever be seen by corporal eyes. It is true that as we must use our senses in obtaining knowledge while on this earth, and while the soul is united to a corporal body here below. For that reason we naturally and instinctively turn to material things around us, and bring forth material images in the imagination. But we cannot imagine a soul or a spirit, as it has no shape, color, weight, or any corporal quality, for it is purely uncorporal and spiritual. Therefore, no spirit can appear to the senses, for they have no corporal or material qualities which appear to the senses. For that reason when angels appeared to man, they took upon themselves the forms or appearances of human beings in order that they might appear to the senses. It is true that many primitive nations have their ghost stories, and many and surprising are the tales they tell of fairies, apparitions and visions of the unseen world. We must not reject all these, as they are too universal, and too unanimous to be altogether disbelieved. We must remember that we are living in the very bosom of a vast, unseen world of spirits everywhere present, some good, others bad. The good live ever with God, the bad are away from him, and they like to deceive us, and lead us astray from God like themselves. For that reason when any message is received from the spirit world, we must be careful for it usually comes from the wicked spirits who are lost, and take a special pride and sport in deceiving us. Thus it often happens that evil spirits lead men astray, tell fortunes produce diseases, deceive by plausible words, possess the souls and bodies of men, and in our day they have succeeded in leading many to ruin.

CHAPTER XXII.

The Immortality of the Soul.

The human soul was made to the image of its Creator, and is like unto God not only in its innermost nature in being a spirit, but also because it will live as long as he lives. The soul is immortal, and will never die. God is immortal in the past, as well as in the future. That no creature has, because there was a time when no creature was, when the Eternal dwelled alone in his eternity before he made the world. But he made creatures, especially reasonable beings, to resemble him, and gave angels and man ceaseless future existence, so that by their immortal undying life, they might resemble their Creator's eternal and immortal Life. This immortality, therefore, is the one of the highest characters of the human soul, the end of its existence, the most beautiful flower of its crown, the noblest excellence of our exalted dignity.

As the moth changes into the miller, as the caterpillar goes down into its sleep and rises into a higher and more sublime mode of existence, and comes forth from its dark cavern as the butterfly clothed with the colors of the rainbow, so man goes down to the grave, and will again rise glorious and immortal from the dead; so the end of this life is but the beginning of another, higher and more glorious state of existence, where we will live again a higher life and dwell forever with God. Whence the existence of God and the immortality of the soul are closely united. For if there is no God, the soul dies with the body, and if there be no future life for us, then there is no God, who will reward or punish us for what we have done in the flesh. Whence these two dogmas of human reason, God and the future life are so closely united, that they go hand in hand in the human mind, and they are believed or denied by the same parties. Therefore the one who does not believe in God, refuses immortality to the soul, and the one who refuses the latter, also rejects the former. The belief in, and the truth, therefore, of the immortality of the soul is after

the existence of God, the most serious, the most important which the Christian can propose to himself to investigate.

This belief in the future existence of man, is of the highest importance both to each individual, to society, and to the whole human race. For it regulates each and every act of our lives, because we judge that our every act, and even thought will be punished or rewarded in the future life, according as we do bad or good. Whence each and every act and movement of conscience is instinctively regulated by reference to the future state of rewards and punishments. Besides it is the foundation and groundwork of every religion, of the laws of each country, and of all the motives of human action.

The reader can see, then, the vast importance of this fundamental truth, the immortality of the soul, and will look for strong proofs. But there are different kinds of proofs. Some proofs are received only in a court of civil justice, and depend on the testimony of the senses. Others are of the nature of strict logical proofs, for example, the proofs of mathematics. Others depend on the testimony of men taken as the whole or a large part of mankind. But there are some things, some primary principles, some axioms and truths of reason so plain, and so evident, that they do not want nor have they any proofs. These are found not only in the intellectual order, but also they are the foundation of morals. Thus all men agree regarding certain evil deeds, certain good and moral actions, and they cannot give the reason or the proofs why some of these are good, some are bad, except the agreement of all men, for they flow from the natural law, and they are founded in human reason.

Of such importance is immortality. For all men, all nations, all peoples, all tribes and tongues believe in some kind of a hereafter, some place of rewards and punishments. Thus we find no nation which does not believe in a state of rewards and punishments, for the good, and for the bad. This belief is contrary to our propensities. For if we were not to be punished or rewarded, we could give ourselves up to all the pleasures of this world, without stint, remorse or the slighest fear of punishment. But the fear of future punishments is unpleasant to us. It takes much of the pleasure out of our bad actions. No large number of people ever can be brought to believe in any doctrine which is contrary to reason, to their own ease and happiness in this world, such as the belief in the future life. But this belief spread everywhere, is the unbiased reason of man, speaking

with certainty on a subject of the very highest importance, to each and every member of the human race. It is therefore true, for human reason cannot be deceived in such important matters, for it was given us, and created in us, for the guidance of our actions by the God of nature, who cannot deceive.

Every member of the human race, in his right reason and sane mind, feels a repugnance to death. We are startled and draw back at the very idea of annihilation. Some interior voice tells us that we will live forever. A certain monitor whispers to us that this life is not our only state of existence, and that for us death does not end all. We have then an inner conscience of a future state of existence. That is interwoven into, and permeates all our actions, and it spreads out all over the earth, and into every rank of society. It is the out-spoken human heart, in which the Creator has written his desire that man shall live with him during his ceaseless eternity. Each one of us feels this, no matter how uselessly any half educated materialists, and so-called scientists, try to lighten this voice of our inner conscience. It is written deeply in the human heart, and the heart of man is upright when free from sin, for it is the God of nature, speaking through his noblest work, man.

Besides there is in each human soul a natural law, a hidden fountain, from whence springs our knowledge of good and evil, the difference between right and wrong. This would not be so if there were no future state of rewards and of punishments. For there could be no right and wrong if there were no rewards for the good, and punishments for the bad, for all our good and bad actions must at last refer to that future state in the other life, where we will ever live in joy or misery according to our deeds. This natural law, or this distinction between good and bad is the foundation of each and every moral law of church and states of society, of the social order in this world, which binds the consciences of men. Thus, the ten commandments, except that part relating to the Sabbath, are all founded on the natural law written in the human heart by the finger of God. All laws of Christian nations are founded on the ten commandments, first given to Moses on the Mount.

Death belongs not to all creatures, but only to those which live, because it is the absence of life in those beings which live. Whence immortality is the attribute, or quality or perfection of never dying. There are two kinds of immortality; one by essence, so that it is in the very nature of

its being, and this properly and above all belongs to God, who by his very nature and essence cannot die. The other is immortality by participation, and belongs to living creatures made unto the image and likeness of God, such as man and angel. For God made them more like unto himself, than any of the other living creatures. For men and angels have a mind and free-will like God, and he has given them undying life and ceaseless existence, so as to more closely resemble himself. God could have created them not to live forever, but only for a time, like unto the living principles of plants and of animals. But as the vital principles of plants and of animals cannot live without the organism which they animate, they die with the latter, and when the body corrupts they cease to exist, as they cannot live but in their organism. They have no pure spiritual faculties above and independent of the organism, as the mind and free-will in man. A thing ceases to exist, because it corrupts, changes, dissolves. Hence, when the body of plant or of animal corrupts, dissolves or notably changes, the living principle animating them ceases to exist. Hence, as their vital principles depend entirely on the organism, when the latter dissolves by disease, wounds, or from any other cause, the living principle dies with the organism, because by its very nature it is dependent on the organism.

It is true that God could have given immortality to any plant and animal, as he once gave it to the human body in our first parents. In that case we would be immortal, not by the nature of the soul, but because of a direct act of the Deity. But the human soul is not immortal in this way, but it lives forever and ever by its very nature, and its undying existence is from within itself. For the soul living in its two faculties, mind and free-will, a pure spirit, it has no parts; no substantial change takes place within it, and therefore being in its superior part a pure spirit, it has not in itself the seeds of ruin, decay and death, such as we find in living creatures below us.

God himself cannot die, nor can he be annihilated or cease to exist, because he is alone the Infinite, Eternal and the Immortal, by his own intrinsic nature. But as no creature can be eternal in any way, no creature can have eternal and undying and ceaseless existence, and be immortal independently of his Creator. Hence, God could annihilate at once all the angels and the souls of all men. But he does not do so, because he makes each creature according to the nature and the constitution he laid down for

them in the beginning, and their natures coming from him, and the laws of their existence, being, and mode of life coming from the Creator, the latter will not change the nature of things he laid down from the beginning. For that would show that he made a mistake, and he would then stultify himself. Hence God never annihilated any reasonable and immortal creature, no matter how debased that being becomes by his own bad will and diseased mind. Hence, God never annihilates the devils or the wicked created souls of men or the bad angels who rise in rebellion against him. While there are a thousand reasons which prove the future life, not one single reason can be given which proves that death ends all for us.

The immortality of the soul naturally follows from the existence of human liberty. For as man is free, as he is the supreme master of his own motives, and as he commands and rules the reason of his actions, so he is responsible for his good and bad motives. He must give an account of what he did in the flesh. Hence, as the minerals, vegetables and animals have no liberty, for they perform their varied functions, not by liberty and free-will, but through a blind instinct of their natures, so they have no rewards or punishments, they have no future life.

The animals live no future life, because they deserve neither rewards or punishments, while man lives hereafter precisely because his is free, and because he receives not sufficient rewards and punishments in this life.

For it is evident to any one, that the good suffer, and the bad prosper in this world. This does not always take place, but quite often. For the bad can cheat, steal, and be dishonest, and still be smart enough to escape the penalties of the civil laws. For the civil laws of every land are more or less imperfect. They do not always catch the thief. Besides, these laws do not punish for internal acts, but they only inflict penalties for those external deeds which fall under the observation of the senses. Hence, a person may be very bad in mind, and in his motives, and in his intention, and still he is free and independent of the punishments of the civil laws. But reasonable creatures are punished by God, not exactly because of their acts, which they cannot always control, but because of the motives of their acts, over which they have entire command. Hence, in these respects the laws of all nations are imperfect, and they do not always attain their objects, or they are imperfect because of the infirmity of human nature. Then there must be some

future state, where justice will be satisfied, and where each one will get his due, for justice is not satisfied here. This, the goodness, justice and sanctity of God demand.

Besides, although a person may have a certain remorse of conscience after a bad deed, still by doing so frequently, this conscience becomes at last stifled, dead, and that person after doing bad frequently, feels no more remorse. Then the remorse of conscience, or the pleasure of having done right, either of these are not sufficient punishments or rewards in this world. For the very bad become at last so hardened in vice, that they are unmoved at doing evil. If these died thus, and were annihilated, and if there was no place of punishment, they would have the very same reward as the good, whose conscience is very acute, and who feel intense spiritual pain and remorse at the slightest fault. All this shows that there must be a future state of rewards and of punishments, otherwise there would be no justice in human life, here, or hereafter ; life itself would be a mockery, and our endeavors to be good only so many delusions.

At first we do evil, because we are allured, enticed, and led on by the pleasure of the senses, by our love of creatures and because we are deceived, and forget our last end, and the rewards and punishments. No one does evil because of evil itself, for the human will was made not for evil, but for good. But at last by continually doing evil, we get at length to love it for itself, and we do wrong precisely because it is wrong. That is the wicked state of the bad, and wretched spirits in hell. That state of a soul is called malice.

By its innate piercing power, the mind penetrates to the essences and natures of things. It seizes the reasons of things, and sees the eternal plans in the Divine mind on which these creatures were made. It is, then, above and superior to all below it. But the rocks and mighty mountains, and the fiery suns twinkling in the firmament, last for ages, and perhaps they will last forever, for we do not know that the minerals will ever be annihilated. Now, as the mind is so powerful, so piercing, and so great as to see the reasons and natures of these things, and ever to weigh and grasp the motions and supreme principles of these creatures, is it not reasonable to suppose that this mind will live forever, or at least as long as these material elements in the rank of creation so far below man ?

All scientists of our times agree that force is something which cannot be destroyed. Thus it may be changed into

movement, light, heat, electricity, etc., but it is never, nor can it ever be destroyed. Now, the human soul is not only a living force in itself and the source of all movements in the body in which it is ever acting, but it can give rise to immortal force, that in a scientific sense lasts forever. Now, as the soul is the origin of life movement, and as movement or force lasts forever, it is evident that the soul lasts as long as that which it produces or which flows from it, as the source is higher than the stream flowing from it. If scientific men agree that force and movement are immortal, and can never cease to exist, but ever appear under some form or another, is it not reasonable to say that the human soul, the highest living force in this world will live and exist as long as any movement, force or modification of the mineral kingdom?

The planets, suns and stars ever move and circle in their orbits. A countless thousand, nay, perhaps millions of years have passed by, and still they exist and move. The rocks and mighty mountains have stood and raised their heads amid the misty clouds since the dawn of the creation, and they may last till the end of time, and, may be, during eternity. Do you not think the human soul, so far above them, ought in its perfections and nature, at least to last as long, and not cease to be at death, while these exist? There is a fitness in nature, and all things show order and regularity, for they are founded on eternal truth. The immortality of the soul shows this, and all nature points to the immortality of the soul.

Anything which corrodes not, nor rusts, which does not deteriorate by use, which does not change in any way, that thing lasts forever, for creatures by change cease to exist. But the reasonable part of man, that is, his mind and free-will in action, do not use any corporal organ. They do not change by deteriorating. They remain powerful and strong even in painful sickness, wounds and diseases of the body. They still retain their entire vigor even if the chief members or nerves of the body are lost, because they want only the invisible forms furnished by the imagination in order to exercise their full power. They do not change then, nor do they use any corporal faculty in exercising their acts. Now, if this is so, we are naturally led to believe that they never cease to exist, because they never substantially change, and therefore the mind and free-will, those angelic faculties of man last forever and are immortal.

It is true, that without a good sound brain, and a healthy nervous system, it is impossible for us to think, at least in

our present state in this life, because the mind gets its material images from the imagination, which uses the brain and nervous system as its instrument. But, as with light the eye cannot see, as without an eye we cannot see the external forms of things, yet the absence of light or of an eye, does not prove that the soul cannot see with good light and a healthy eye. So without a sound body, the mental images and thoughts will not be sound. This is especially seen in cases of insanity. Insanity, therefore, is not in the mind, but in the derangement of the body, mostly in cases of injury to the nervous system. Hence we often find it in those whose systems have been deranged by excitement, debauchery, or by diseases which deeply shock or upset the nervous system. Hence the most successful treatment of insanity, consists in removing the cause, and in building up the whole physical system. Therefore, in the other life, after the last resurrection, when the soul will not be united to a diseased, but to a sound body, there will be no mental derangements, but there all will be peace, as now exists among the angelic spirits who were created separate and entirely independent from matter.

The human soul, therefore, is not entirely sunk in matter like the animal and vegetable souls which see only the particular, and never the universal, nor is it entirely separate from matter like the angel. But it is partly buried in the body by its vegetable and animal faculties, and it is entirely above, independent of, and separated from the physical, by the mind and free-will, which exert their acts without any corporal organ. But the mind draws its universal ideas, and abstracts, and forms its thoughts, from the particular images furnished by the fancy or imagination, and the latter are drawn from the five senses. But the mind and free-will, being purely spiritual and above, and independent of matter, are like or similar to the angel, like the latter, thus, the reasonable part of man is immortal.

All this is reasonable. For every where we see a gradation of creatures, a hierarchy of beings, leading gradually up from the lowest mineral, through the different kinds of living beings to the highest angel, who in the most perfect manner given creatures, repesents God, to whose image and likeness all things were made. And in considering this vast range of created beings, is it not reasonable to suppose that between the plants and animals which live only for a time and then die, to the angel and to God who live forever that there should be other living creatures, who would at

the same time partake of the spiritual, and of the material, and unite them, two great divisions of creation, that this being would be also immortal, and by his ceaseless life represent the life of God? Who can this be but man.

A thousand proofs of the immortality of the soul rise to our own minds as we write, and we only regret, that space will not allow us to give them all. We call the attention of the intelligent reader, to that horror we have of taking the life of a fellow-being. Fright seizes our whole nature at the thought of murder, or of taking human life. This is especially strong in our childhood, when nature, clear and unbiased by education, speaks so loudly to our conscience. We do not start then when taking the life of any animal, or in cutting down a tree, because nature instinctively tells us that it is not murder, because these do not live forever like man. All nations and peoples recognize this, and they punish murder with the death of the murderer. Does not this show that the great cry of reason and of nature goes up from every human heart, proclaiming loudly and to all, that man is immortal and will never die?

The very idea of the destruction of the soul is so repugnant to us, that we instinctively associate with it the death of the body. Whence all laws say, "Thou shalt not kill." They all recognize that law of nature written in the human heart that it is forbidden to take life by private authority. Whence it has no exception and we would be as great murderers to kill ourselves as to take the life of another person. Therefore, we must not kill, not even ourselves, because suicide is the murder of one's self. We must bear the trials of this life, knowing that Christians rarely, but infidels often take their own life, because they do not receive the grace of Christ which makes men happy and contented in this life.

Modern science, unfortunately, having been divorced from religion, having thrown off all restraints, and having been taught mostly by men little learned in other things, this science tends to degrade man, to lower his dignity, to make of him a brute beast, and to take away the distinction between man and animal. For that reason they say that as the souls of animals do not live after death, neither does the soul of man. In order to combat that infidelity, we will tell in the following pages the difference between human and animal souls relating to the future life.

There are two errors regarding the souls of animals. One says they have reason, intelligence and free-will, the other that

they have no sense but are only pure machines, which by spontaneous generation and evolution came forth from crude matter, throughout the countless ages of the past. According to this they were developed from the crude forces of the mineral kingdom. Each of these errors is gross, crude, contrary to reason, to common sense, to the traditions of all ages and peoples, and they both tend towards debasing and degrading man to the level of brutes. Animals have a true soul or spiritual principle, which was transmitted to them by their parents, and which lives and has its being entirely within their organism. It entirely perishes with the latter, because it cannot live without the organism. For they have no faculty above, and independent of their bodies. They were made by God to represent in a crude way, his own eternal life. They are like broken rays of that divine and living Intelligence, which spreads such numberless living creatures upon this earth. Living only for a time and then dying and disappearing forever, during their life, they represent the life eternal of their Creator. As they have no faculty above and independent of their bodily organism, they die with the latter, and they do not survive death like man. Thus their life is entirely sunk in matter, in their organism, and this being destroyed, they die.

Therefore, they do not cease to live after the death of the body. For in deep sleep the mind is a complete blank, and then it cannot act, because the whole nervous system is at rest in sleep. But in a moment, when we awake, the mind and will assert their full power, and that in an instant, showing that the absence of the forms, of the imagination does not weaken or destroy the mind or free-will of man. All this shows that the soul of man is an immaterial substance, above and independent of matter,

Although the mind becomes dim with disease, and the will is weakened in passion and in sickness, because of the influence of body on reason, still they both, by an effort, can assert their power over the rest of the organism. When the animal functions in man are strong and powerful as in youth, the mind is then weaker than later in life; while in old age, when the whole organism totters and becomes enfeebled, the mind and will may still be strong and powerful. This shows that the mind and will do not depend on any corporal organ to produce their acts. For although they display weakness in sickness, still that does not show that they are not above the organism, for the mind follows the will. Then their life and functions follow that of their organism.

They can exercise no faculty without the aid of some material or bodily organ, and when the latter dissolves they dissolve with it. Their souls are annihilated at the destruction of the body, or rather perish with their organism. Their life, therefore, follows the well-being of the body.

This is partly so in man, because he has a body like an animal and like the latter, he uses his bodily organs in his vegetable and animal functions of life. But he has two pure spiritual faculties or powers, which are above and independent of any bodily organ. They are mind and free-will. Although the mind uses the imagination, and this the nervous system in thought, still the reasonable part is independent of, and superior to the human body or organism.

"Man alone has as a soul, a complete spiritual substance," says St. Denis the Areopagite, "while the souls of animals are not complete substances." That means that the thing, whether material or spiritual which does not depend on anything else, does not lose its own being with the destruction of any other, but that it can stand and exist alone and independently of any other. Thus a stone can exist alone, while the color, shape, etc., of the stone could not exist without the stone, as they do not exist alone, but in and by the stone colored, shaped, etc.

In the human soul the reasonable faculties, that is, the mind and free-will do not depend on the body for their existence, like the sensitive powers, called the animal and plant functions. The plant grows only as a plant, the animal moves only as an animal, the pure spiritual and reasonable being acts only as a pure spirit. Thus, amid all beings their acts always follow the nature of these separate beings, because the acts of the being are only the being itself in operation, producing acts by its divers faculties and powers, each according to its nature.

Man not only grows, nourishes himself and reproduces his race like the plant, and not only has he the five senses and imagination of the animal, but he also thinks as the angel. This last power of thinking distinguishes him from the animal. As a vegetable he acts on his own body, as an animal he enters into relation with all surrounding material bodies existing or possible, while by the mind he rises to the supreme and immortal truths of the intellectual order. These last are the acts of reason, and these eternal truths which the mind brings forth, and which are eternal, they immeasurably elevate man above any species of animal. This powerful human mind abstracts the pure spiritual and

immortal truths from the sensible species offered by the imagination. The mind makes these still more universal, renders them immortal, raises them above the material qualities of time, space and the changes of material things. Thus in that supreme, changeless, immortal, serene plane of the pure, spiritual, eternal, everlasting and immortal order, there the human mind contemplates the truths which by its own native activity and innate superiority it has brought forth. It raises these truths by the pure force of its own superior, purely, spiritual nature to this, the reasonable order of things.

As an example of truth, let us take the multiplication table. It is unchanging truth and will remain so in eternity. For a time will never come when the truths of mathematics will not be true. They are as eternal and immortal as God himself, because they are a natural and reasonable revelation of the perfections of the divine Son. When one thing grasps and completely holds another, it must be either equal to, or at least superior to the thing it holds. Thus we cannot put a barrel of water in a quart measure, because it is too small. But the human mind completely grasps and completely holds the immortal truths of mathematics, and therefore, it must be as great and as immortal as those truths, which it completely understands, holds and brings forth by its own nature, power and activity. From the sight of the particular and sensible forms of material objects, brought forth by the imagination, the mind by its own superiority draws forth and produces these immortal truths. It must then be immortal, equal at least to that which it brings forth. For it is impossible for anything to give what it has not, and if the mind gives these sensible forms an immortality, so that they are eternal, it also must be immortal.

The finite cannot become the infinite, because no finite creature can become the infinite God. The particular cannot give rise to the universal. No material creature can change into a spiritual being. So no mathematics outside of God would be, unless there was a created and immortal mind to abstract these universal truths from the particular objects seen in nature around us. So the animal powers which are buried in matter and which are particular and have only the particular for their object; none af these can abstract the universal and immortal truths from particular objects. Only the mind can do that, because it is a spiritual substance, immortal and eternal in its future ceaseless existence, like those immortal truths it brings forth.

The soul, therefore, or the reasonable part of man, is immortal because it is immaterial. For, if it were material, if it were composed of parts, it would not be immortal. Whence all those materialists and infidels, who in every age denied the immortality of the soul, began by saying that it was nothing more than a spark of fire, a drop of blood, a monad, a play of nerves, a mass of brain, or the result of electricity and of physical or material forces. Hence, to deny the spirituality of the soul is to deny its immortality.

From what we said in the foregoing chapters, the intelligent and well-disposed reader can easily see that all substantial forms of minerals, of plants and of animals are immaterial, spiritual principles or souls, and that they naturally lead us up to the better understanding of the perfections of the human soul. For they are only so many weak and imperfect images of our own immaterial and immortal souls. We have all the perfections of them and more. For, added to the mineral, vegetable, and animal substantial forms or souls we also have reason, which belongs to the angel and to God. It is impossible to imagine the size, shape, color, etc. of the soul, for it has no material parts and qualities, no accidents, modes, or bodily qualities such as the imagination brings forth and re-shapes in us. Only by the spiritual mind can we conceive what a spirit is. Therefore, men absorbed in material sciences sometimes forget that they cannot imagine a soul, a spiritual substance, for it has no parts and it is above and beyond the fancy or imagination.

Every living soul was made to animate a material body, while a pure spirit was created entirely separate and independent of material things. Therefore, the soul has many powers which belong to the plant and animal. These powers it cannot exercise without the aid of material organs which all together make up our bodies. By these it gives its own life to the body. A living body is higher than a mineral which does not live. Thus, any soul separated from the body cannot exercise all its functions, and we are therefore, incomplete after death without our bodies. For that reason God has ordained that one day the body shall rise from the dead and be united to the same body, for the latter is a part of the very nature of man and goes to complete his existence in the abode of bliss in heaven.

It is surprising how some men try to deny the resurrection of the body, and with such little reason. We have seen how the soul, from the crude materials of the food, has shaped, formed, fashioned and built those bodies of ours. And what

the soul as a secondary cause has done, why could not God do the same? We can make the most complicated chemical combinations and again gather back the very same elements in the precise state, quantity, and quality they had before their identity was lost in chemical unions, and if man can do this, why cannot God with his almighty power do the same for our bodies? We must remember that the resurrection of the body is not the work of nature; for to raise the dead is above nature, but it is the work of God, who by his own power raised himself from the grave after his crucifixion. He wants us to be like unto himself. For that he rose and for that he will raise us all up from the dead on the last day. How often have we seen the trees, flowers, insects and all nature rise each spring from the dead winter and again each spring-time all nature puts on the life of summer. The light and heat of the sun in balmy spring calls earth back again to life, and nature full of life rises from the cold, frozen tomb. Will not man do more than nature below him? If the sunlight and the spring day can bring forth such living things from the dead earth, why cannot God do the same with the human body.

We go out into the night and contemplate the twinkling stars set like so many brilliant diamonds in the sky. They circle round and ceaselessly shine down upon us. They have done that since creation and perhaps they will go on doing so for countless series of years. Will man's soul, which can weigh these mighty suns and tell their natures and who is so immeasurably above them, will man's mind die while these still shine? Is man then inferior to them in duration? Will not we live longer than they will shine? Surely God, who has strewn all nature with beauty, design and analogy, surely he gives us to live longer than the minerals will exist? From the nature of living creatures we learn that each one is a complete individual. All in them tend towards one and the same end given by nature's God. If an organ is cut away from a living organism, the whole creature is more or less hurt, and the function which resided in that organ can no more take place. The part cut off the organ is destroyed as a part of the body and it dies. This is not so in minerals. For a piece cut off, no matter how small, is still of the same kind of metal as it was before it was detached. It is thus because the substantial form which makes it what it is, extends to every part of the mineral, for if it did not that part cut off would not be the same kind of a mineral, but something else as the form makes it what it is.

The living principles or souls being the substantial forms of the organism they inhabit, the same as the mineral forms, it follows that like the latter they are whole and complete in every part of the organism. In minerals the form materially extends to every part of the mineral, while the living soul or vital form is virtually in each and every single part of the organism. Whence the mass of the mineral can be divided into as many parts as the mineral can be separated, but the living form or soul of plant, animal, or of man cannot be separated or divided into parts, for it has no extension or parts. Therefore, every living soul is one simple, immaterial substance. It is not composed of parts. The soul, then, is simple and immaterial.

Now, when a thing is destroyed it perishes by part separating from part, by one portion dissolving from its neighboring portion till the whole thing ceases to be what it was before. This is the way all material things cease to exist. Thus the animal soul dissolves because the organism or animal body in which that mortal soul resides, little by little dissolves and changes, or because the nervous system is suddenly destroyed. But as the human soul has no parts it cannot dissolve by the dissolution of parts. It is a simple, spiritual substance, and therefore it cannot be destroyed, because there is nothing in it to destroy. So it is with all truths. They exist forever, because they have no parts. Thus, $2 \times 2 = 4$ has no parts. Therefore, it cannot be destroyed. It will live forever, because it is an immaterial, spiritual truth. The soul receives these and it must be like the truths it grasps without parts. Therefore, the soul can never die, because it has no parts. We are, therefore, immortal, because our souls are immaterial and have no parts. Now what has no parts cannot dissolve by part separating from part, but where a thing is one, whole, simple, immaterial, there is no part to dissolve from part and, therefore, that thing is above and independent of the changes of matter and therefore as it cannot change, it must exist forever without change and therefore it cannot die. Such is the human soul.

Everything moves. That is the law of all beings. For as each creature was made to the image and likeness of God, so the movements of creatures tell us of the eternal movements of the Deity, taking place now and ever within himself, the coming forth of the August Persons of the Holy Trinity. Whence the movement in God is the generation of the Son and of the Holy Spirit. Life is movement from within, and the more this act stays within the living

being, the more perfect is its life. In God this movement is entirely in him, and ever remains within his own divine substance. For these two Persons, the product of this movement in God, are the same as the Father, in nature, substance, and all three Persons make but one God. So each creature moves, and in this it more or less completely represents these two Acts of God, the generation of the Son and of the Holy Ghost.

While minerals move by attraction and repulsion, they exercise their acts not in themselves, but on others outside themselves. They therefore do not live. But all living things exercise their acts within themselves, and all their vital or living acts tend towards two objects ; the preservation of themselves, and the generation of their race. By the first they represent the continual preservation of the divine substance of the Deity, who lives and always will. By this generation of other creatures like unto themselves, they represent the generation of the persons of the Trinity. The movements of each living thing comes from one single, simple source or spiritual principle we call the soul, and all their acts are directed by their natures towards these two ends mentioned above. Only one simple, single and spiritual soul could direct all the varied acts of creatures towards these two ends.

Life movement in the plant is stationary, in the animal is local, while in man it is all these and besides it is intellectual, that is, he penetrates to the essences and natures of material things, and rises to the reasons and motives of spiritual beings. All this would be impossible if the soul was not immaterial and without parts. For a thing to tend towards one and the same end, must be one in some way, otherwise if composed of parts, each part would be independent of the others and tend towards its own particular object. Now it is evident that there is only one soul in us, and as our movements tend towards one end, the soul must be one and not made of parts, otherwise there would be irregular actions, motives and ends in us, which we know by experience not to be so.

Having these propensities towards immortality, tending to a future life by its very act and by its very essence and nature, that future life must exist or the instincts of our souls are lying, all men are deceived, the voice of nature lies to us, and men are but fools if there be no future life to satisfy this ceaseless desire of immortality towards which man's actions tend.

Every living being generates another like unto itself. In

the vegetable and animal kingdoms, the being generated is produced from the substance of the generator, they must both be living beings, they are of the same nature, both belong to the same species or race, each is a different individual and both have in them generative powers. All this relates to and throws light on the ineffable mystery of the generation of the August Persons of the Trinity. The Godhead, although of three Persons, still is one, simple, spiritual immaterial and immortal substance. God has no parts, no body, no extension, and fills all spaces, and is whole and complete in each part of space in all things. The human soul was made to his image and his likeness, and in this respect it is simple, immaterial and without parts. Like unto its Creator, the soul is immortal and will live as long as God lives, who made it to his image and likeness.

As all living beings generate another like themselves, they are simple substances without parts, for the whole being tends to, and takes part in that act of generation. For if they were composed of parts, each separate part would generate another part, and there would be a confusion. But only one being is generated at the same instant, and it is exactly like the generator in every respect, at least as soon as it arrives at its full age and growth. To generate then this new creature, it is necessary that the living principle of the generator be simple, immaterial and not composed of parts. Hence, the vegetable and animal souls are simple, and although they are entirely buried in matter, and cannot be separated from it and live, still they have no parts.

The generative powers are divided into the active and the passive. As the highest act of the plant is the generation of another plant like unto itself, both the active and passive virtues, that is, the male and female stamens and petals, are always found on the same plants, and it is thus in some of the lower animals, because they must be always occupied with this their chief work, while among the nobler animals and man, because these creatures are destined for a higher object than the multiplication of their species, they are divided into the masculine and feminine genders. Therefore, in the plant, to stop the generation of the plant, is to stop its growth, to kill it. The animals are not so confined to the work of generating their species, for in many other ways they are useful to man. Whence they mix up indiscriminately and with few exceptions they respect not the members of the opposite sex, not even their own parents or young, while for man there are many other duties in life besides the birth

of his own species. Whence, because of this, one man joins himself only to his own wife. On account of the education of the children, because of this valid wedlock, this union cannot be dissolved. They not only generate their children according to the flesh, but also according to the precepts of godliness and virtue.

Although the vital principles of plants and of animals are immaterial, simple and incorporal, still they are buried in material substances, the body or the organism, and they generate another organism, their young. That which they generate is like themselves, a spiritual, vital, living soul plunged into, and completely buried in matter, from whence it cannot be separated, and outside of which it has no power or function. Thus the generation of plants or of animals, show no signs of immortality. We must rise to man, and see generation in him, in his mind. The highest act of man and of the angel, is the generation of a thought by the mind. This is an act of reason, and as reason is their noblest faculty, so in thinking they exercise their highest powers. Now, a thought is simple, nor is it divided into parts. For we cannot suppose the half, or a third, or any part of a thought. Now, as the thought is simple and immaterial, and has no parts, so the thinking soul, which brings it forth, must also be simple and immaterial. For if it was divided into different parts, each part would bring forth a part of the thought, which experience tells us, never takes place when we think. Nor can we say that one part of the soul brings forth the thought, but rather one faculty gives it birth. That is the mind. For to exercise the mind, full consciousness is required, and if we partly lose the control of our minds, the thought is not partly, but wholly brought forth, or not brought forth, or not at all. Although it may be irregular, dim, doubtful, uncertain or false, still, the thoughts of the mind are whole, complete, or nothing. Thus it is all through spiritual things. They are whole and complete, or nothing. All this shows that the soul is simple, one complete and immaterial without parts.

Now, that which is immaterial and has no parts, is spiritual, and the spiritual which can live above and independent of matter, is also immaterial and immortal. For not depending on matter, the mind is above, superior to, and independent of the changes and mutations of matter. And as it lives, and can exist without matter for even one instant, why not forever? For the idea of time, the past, the present and the future, come not from spiritual, but

from material things. For they are qualities of physical things. Therefore, with us it is not strictly right to say that the soul will live forever in the future. For, with reasonable beings living above and independent of matter, there is no past or future, for all is present with reasonable beings. Then the immortal minds of man angels and even God himself, always live in the present. All is present to them, there is no past or future, for time relates to material changes above which and independent of which, all reasonable beings live and enjoy spiritual things, truth and goodness. Therefore by studying, especially the generation of the thought in the human and angelic minds, we see the immateriality and immortality of the soul. These created souls generate others like unto themselves, so that they by that may represent the generation of the three Persons of the Trinity, who are generated in the bosom of eternity and are being now and always will be produced. For that is the life of God, who is eternal and infinite in all his acts. God is actually and really infinite in every way and in every attribute and power, so he gives each creature an infinite power of generating, so that they could generate an infinite number of creatures like themselves. That generative power of creatures is not actually infinite but only infinite in possibility. For each could fill the earth as the first created living being from the lowest plant to Adam actually did fill the world, as we see it peopled at present with living creatures, which came at first from original parents. In the same way, their is no bound or limit to the power of the human mind, to think or bring forth its ideas, or its spiritual children in seeking and learning truth. In fact, that will be our work during all eternity, studying God the Son, and loving God the Holy Spirit. Therefore the human soul is immaterial and has no parts, and therefore it is immortal.

Although he is the lowest of the intellectual and reasonable beings, yet man has the highest, the noblest, and the most perfect soul. He in himself resumes all the powers and perfections of the creatures below him. His soul animates a material body, exercises all the mineral, vegetable, animal, and reasonable functions of the four great kingdoms of nature. He comes direct from the hand of God, who at the moment of conception creates the human and immortal soul, which is not, therefore, generated from the parents, like the souls or living principles of animals and of plants. At the ressurrection, the body will partake in the immortality of the soul and live with it during eternity.

For then the body will lose its material qualities inasmuch as the power of God can make it like a spirit, without at the same time, losing its qualities as a body. Therefore, as the soul now gives the crude materials of the body to live its own life, so then the body will have the qualities of spirits, such as life, agility, quickness, invisibility, rapid movement, freedom from weight, etc., so that after the resurrection we will have a spiritualized and immortal body. For as the body is a part of our innermost nature, as we would be incomplete without all parts of our nature, so we shall rise glorious from the dead as Christ first rose for us, and with both body and soul we will live forever and ever with him in heaven. This is the fruit of the redemption, and this will be the rewards of those who follow Christ. Thus, as Adam was made immortal, as death came through sin, so Christ repaid that sin, and he will raise us up on the last day, in joy and glory to live with him during the countless ages of eternity.

CHAPTER XXIII.

The Fall and How Repaired.

The diverse individuals of the mineral, vegetable and animal kingdoms, are all perfect in their own way. They are as well made and as complete in their natures as we can imagine they could have been created. They one and all, like mirrors, reflect the transcendent beauties of their great Creator. They obey each and every rule, law, and instinct made, laid down, and given for their guidance. No irregularity is ever found in the laws made for their movements. These laws, made to guide material things, are never broken except by a direct act of the Deity, which is a miracle. The plants follow the types of their various species in growing, nourishing themselves, and reproducing their kind. The animals obey the laws of their varied natures, and never abuse their faculties and passions. God, who by his eternal and very essence is unchangeable, gave them these changeless laws that they might all in that resemble him. Thus in minerals we find the footprints of the Creator, in vegetables we see his resemblance, in animals we find his likeness, but in man shines forth the divine image, for we are far more like unto the Creator than any creature of this world below us. By his inmost being and lordly nature, by his sublime faculties of mind and free-will, by all the wonders of his sensitive nature living, moving body, and by his very constitution man is above and superior to all other creatures on this earth. Each one will admit that the human race is immeasurably superior to any race of animals. We can control all earthly creatures, control minerals and use them for our own purpose. We harness steam, electricity, light, heat, the flowing waters, the winds. In a word nature is our obedient servant. We need only use these forces we find around us to turn them to our own benefit. All nature is at our feet. We were made to rule all creation under and below us. For as God made man to his own image and likeness, to him he gave to rule and command creation in his name and by his authority. For this reason he also gave him

power over all the forces of crude mineral materials, over the plants of earth, over the fishes of the sea, over the birds of the air, over the beasts of the fields. Thus man is the king of creation, and the other creatures are but his slaves. He is their ruler, they his subjects. They were made for man, while man was made for God. This requires no proofs as it naturally follows from the nature and subjection and order of worldly things.

As in the order of nature, the vegetables live on the minerals, as the animals live on the vegetables, as man lives on minerals, vegetables, and on animals, so in man the vegetable should control the mineral powers, the animal forces should command the vegetative faculties, and all should be subject to human reason, the noblest faculty of creatures. Thus, not only should each and every creature around us be subject to our reason, but also every power, faculty, organ and member in us should be guided by our reason. Then all would be peace, order, harmony, law. Then creation would reflect the sublime image of the great Creator, and man would be made to the image and likeness of God, who is essentially and by nature his eternal law, order, subjection, peace, beauty, truth, goodness. He is a supreme law to himself. The Persons of the Trinity dwell in ceaseless peace and harmony, because they are subject one to the other, and suffer no irregularity or rebellion in proceeding one from the other. And in creating they wished to show forth their order, law, and eternal perfections, to created reasons, their images.

This was the way man was created in the beginning when he came forth perfect from the hands of his God, made to his image and likeness and given to rule all the various creatures of this world, standing forth in all their beauty, harmony, perfection and subordination. This was the design of God in the beginning. Our very ideas of law, harmony, peace and obedience show us that man was made to rule all nature and creation, and faculties within him, as well as all creatures without him.

There was a time when this world was not as it is now. The deepest granites and rocks of which the crust of the earth is made show the effects of intense fire, and during the first period of time the materials of the mighty mountains were in a state of gas or fluid. During this time, during which vast periods of ages went by, no organism could have lived for a moment upon the surface of our planet. For all was continual upheaval, ceaseless earthquakes, volcanic action, mighty heat. The crust of the earth shows all this. Then

came other periods of comparative rest, during which mighty floods of hot water swept over the whole surface of the earth dissolving the rocks, tearing asunder the stones, grinding them to pieces, and preparing the soil for man's use and benefit. Some so-called scientists like to laugh at the Bible account of the flood, so as to appear wise and learned in their own conceit. But you have only to look around at the fields covered with verdure, at the strata of rock, at the different layers and seams of sand, gravel, clay and debris everywhere under your feet to know that not only one deluge but many floods once covered the whole surface of our globe. The bones of animals now living only in the torrid zone are often found in caves and buried amid the remains of the flood. The coal fields of the most northern regions show that these countries were once covered with vast forests and that the climate of places now covered with everlasting ice, in times far back was once balmy, warm, moist, and exceedingly fertile. The whole climate of the earth has changed, and changed for the worst. All scientists fully admit this change of climate and they try to explain it by various theories. They all tell us that there was once a time in the primeval periods when the balmy air and gentle heat brought perpetual spring, and the earth produced in abundance all that was necessary for man or beast, long before the creation of Adam. Geology tells us all this, and the naturalists of every clime admit the teachings of this recently developed science. Why has all changed? Science cannot say. Many theories have been given to explain this change for the worst, but all are at fault.

We know that the soil has retained but a part of its former surprising fertility, and that now only by hard work will it yield a bountiful harvest. "Thou shalt earn thy bread with the sweat of thy brow," is well written on each member of the human race. Religion steps in and frankly says that all this came from the rebellion of created reason against the Lord.

In the beginning, religion tells us, that God made the angels not as the crude, visible things of the world around us, but as simple, reasonable, everlasting spirits like unto himself, and the first exulting act of their mind was to dimly see Truth, the image of the divine Son, and to faintly grasp with their free-will the Good, the image of the Holy Spirit. Thus, they represented the Deity himself in the internal reasonable life of the Godhead. But they did not see him face to face as he is, but from the contemplation of their

own natures they could conclude what were the glories of the Divinity of the Father, Son, and Holy Ghost. But we are told that the third part of them rebelled and did not remain faithful to their Creator. Then they fell, while the rest remaining faithful to the light of reason, as a reward of that, were admitted at once into the direct presence of the Deity, where they have remained forever in the worship of God, partaking of his own infinite happiness and eternal joys.

When this took place no man can tell. Perhaps it was during the countless ages which passed by in God's eternal and ceaseless existence in the everlasting present of the Eternal. Perhaps they came forth rejoicing in free-will and piercing mind during the seemingly countless ages, after the creation of this material world, and before man was made. Of the time and place when or where they were made, or where and when they fell, we know nothing. We only know that it was in the present, for reason and spirits have no measure of time because before the material world was made there was no time or space, for time is the measure of the movements of material, physical things, while space is wherein material beings exist or are conceived to be. Then, take away material, visible, physical things, and you destroy both time and space, for they are both qualities of material bodies.

What was the sin of the angels who fell? It was the sin of pride. From that as from a poisoned spring come forth all sins, for there is no sin without pride which is rebellion against God. Some say that these great and wonderful spirits refused to worship Jesus Christ as the God-man when it was announced to them in heaven that he would one day become Incarnate and be a man. Others say that their leader, Lucifer, wished to receive divine honors, and in place of his Creator he desired to ascend on high and to set his throne beside that of the Almighty. For this he said: "I will ascend above and be like to the most High." That would be idolatry, the worship of a creature. Being cast out of heaven in an instant, hurled down by the mighty hand of God from that supernatural state wherein they were created, they have ever since desired to receive divine honors from mankind and have ever wished to receive worship from duped men. Thus, before the Incarnation of Christ they led the pagan nations into idolatry. They entered into and possessed the idols of paganism and delighted in the sacrifices and worship of poor deluded men. They entered into the souls and bodies of men and women and imitated the sweet

influence of God dwelling in man, his highest temple on this earth.

It was certain that the demon could not be like the Godhead by nature, for he knew that he was a creature and God his Creator, but he wanted to be independent and not obey.

Some of the angels fell. Revelation tells us that. It is found in the Bible and in the traditions of the Christian Church. When God saw the beauty of his handiwork injured by the deliberate evil of these, his heavenly images, he then made this material world and at last he created man to rule here below, and afterwards, after a time of trial and probation, to take the places in his heavenly court left vacant by the rebellion of the fallen angels. Thus, when he made the first family, God looked down and saw in the tender love of the husband for his wife and in the affection of Eve for her husband, which original sin did not destroy nor the flood wipe out, he saw in them the image of himself. That love represented his Love, the Holy Ghost, and he made them thus that each family ever afterwards might be one in nature but two in sexes, from whence the children might be generated and educated. Thus, every family resembles the Trinity. The love and ardent affection of man for the maiden represents the love of the August Persons for themselves.

They were both created perfect, all innocent, knowing no evil. They were the highest visible image of the Trinity. Adam, made from one, not generated, represented the Father in heaven. Eve, who came forth from Adam's side, made of his own flesh, blood and bone, and, as it were, generated from his own substance, Eve represented the Son generated from the Father, while their child born of the love and union of both, was a figure of the Holy Spirit who proceeds from both, Father and Son. Thus, the first marriage was made by God himself, to be a striking figure of the three Persons of the Trinity. For we must stop to say that Adam, Eve, and their child, all three, had only one human nature, but each was a separate and distinct person of that human nature they possessed in common. Thus, it is with us all. We each have one human nature, unique and common to us all, but we are each separate individuals of that common nature. Thus, it is also with the animals and living things of the same kind and species and natures. They in living, and generating their kind, all represent the Persons of the Trinity who have one common nature, the Deity, the Godhead. Thus, there are three Individuals or Persons in God, having one and the same Divine Nature.

Mankind, therefore, is divided into two, the male and female man, because woman is made to the image and likeness of God, as well as man. For she is not inferior to her brother, but rather his equal. She was made to be the helpmate of her husband in the generation of another like unto themselves. Therefore he is the male man and she is the female man. But they are both men. For, reason, the highest faculty of man, is the same in both, and in woman as well as in man, it is the most perfect image of the Holy Trinity. With them the Church says that in rights of wedlock man and woman are equal. This was the way God made them in the beginning. But since that woeful fall of Adam, it is necessary to have a head. Thus, every family has a head, that is, the father and the husband. This is the true position of woman. Therefore, the pagans who strive to make a slave of woman are wrong, as well as the customs of so-called polite society, which makes of woman a little goddess, thinking that she is superior to man, whereas she is his equal, but inferior in physical strength. In man, therefore, we find the highest developed type of the animal, and like other animals man is divided into individuals of the masculine and feminine genders. In man, the husband, we find the highest and most fully developed type of the fatherly characteristics, while in the wife or in the woman we find the motherly instincts in the highest degree.

Then, in the husband we find the fatherly instincts and qualities, while the wife displays the motherly love and kindness both for her husband and for her children. Then, as by instinct the animals generate their race and take care of their young, so the same is found in man who is the reasonable animal. But no animals abuse their instincts, for instincts in creatures, is the mind of God directing nature. But only man will abuse reason, and he alone turns the pleasures of his appetites from their right end, and legitimate objects. To have a family is natural to both man and woman and only within marriage are man and woman allowed to generate their race, because both father and mother, are necessary for the right education of their children. Therefore, in all countries, children born outside of wedlock are considered as illegitimate, and all things in mind or in body tending to this, are condemned by reason itself. In man the generative powers are the highest developed, because the female appears throughout nature rather as an undeveloped male. For that reason the fathers,

all through nature gratify their passions, and the mothers cherish and take care of the young, the product of this.

Before the fall, therefore, children would have been born the same as now, but passions would not be abused, for all would have taken place as the duty of nature, and there would be no shame attached to these things, for this would be considered as the highest act of the vegetative powers, the generation of another human being like unto, and an image of generation in the Trinity. All this would come from that sanctifying grace, that indwelling of the Holy Ghost, who would make man perfect in every way, and given his reason full and complete control over his lower faculties. Adam and Eve were perfect because they were created in original grace, which gave their minds and wills complete control over their lower natures.

Let us study grace in its effects, and in its nature, and then we will be better able to understand the nature of original sin. For us, our foolish forefathers lost that priceless treasure, that is, the indwelling of God in the soul and body of man, as in a temple where all was order, law, harmony, beauty, surpassingly beyond what is now found in nature, because God in all his surpassing beauty, law, and harmony was there, and gave his supernatural life to man. For, as the soul raises up the dead, crude materials of the body so as to live its own life, and as the invisible spirit gives law, order and beauty to the materials of which the body is made; as the human soul gives to the body its own life, so God gave to Adam's soul his own life, the life of the Godhead. That intimate union of the human nature with God, raised the first man up to a height, infinitely beyond all creatures. That was the supernatural state in which Adam was made—that is the direct union of the creature with the Creator. By that, Adam not only lived his own natural life by the life of his soul, but, also as he partook in the life of God, he was a partaker in God's own happiness, and perfection. His whole lower nature was subject to reason, his passions were controlled, his propensities and desires sought their own particular objects, only when allowed by reason, his mind was penetrating and his will powerful. All this came from the direct presence of God in the soul of Adam. There was, therefore, in him, no temptation to do wrong, no inclination to evil, no allurements of the flesh, no concupiscence, no irregular love of creatures, no turning away from the light of reason, no disobedience to God. The first two human beings were very happy because they par-

took of the happiness of God who dwelled within them and gave them a part of his own infinite joy and happiness. That was the state of original justice and innocence in which they were created.

When God makes an intelligent creature, he must make it to see beauty, that is, the Father ; to know the truth, that is, the Son ; to possess the good, that is, the Holy Spirit, because no being with reason can rest satisfied with creatures, but by their very intellectual natures, and by their piercing minds, they penetrate ceaselessly towards the Infinite. Therefore, the good Lord made Adam for himself, as before he made the angels.

But the various powers and faculties in man, tended each towards its own object. In order to control them, God gave Adam grace, that is, a supernatural power or strength by which his human will was strengthened to control his lower passions, and by which his mind was enlightened to know all truth in nature. By this supernal, direct impulse of God, which we call grace, Adam's reason controlled the rest of his passions, faculties and powers. This grace is not a creature made by God and infused into man. It is rather God himself living, taking up his abode in the human body and soul. For man having in himself, in a higher degree, the perfections of all creatures, he is a compendium of all nature, of all creation, and therefore each man or woman is a wonderful temple in whom God dwells, whom the Creator loves, in whom he lives, and where he receives the worship of all his creatures represented by man.

God, then, dwelled in Adam. That was grace. We see how regular are the laws of nature. They come from God, their author. All is regularity, harmony, order, where God is. Therefore, while God dwelled in Adam and Eve, there was no rebellion of the flesh, no concupiscence of the senses, no irregular love of creatures, no guilty passions, no sin. They were not clothed, and they were not ashamed. The whole world stretched out like a mighty map before them in which they easily read of the glories, and the beauties, and of the perfections of their God whom they loved and worshiped.

They did not see him face to face, but only dimly and through the perfection of their own bodies and souls, in the beauties of other creatures. The wildest animals came before them mute and submissive, and they called them by their names. The nature and quality of each mineral and of every plant they knew. They understood the sciences. To

them the secrets of nature were open, for they were to be the first father and mother of the whole human race, and they received their education direct from God, an education and a knowledge which they were to hand down to their children.

We must remember that God made the first pair, the first man and woman, to be the generators, and the parents of the whole human race. From them came all nations. For the word 'nation' comes from the ancient Latin, and means born. The science of languages leads us back to one original language, because we find certain roots common to all spoken tongues. The histories of all peoples tell us of the original man and woman, of the fall and of the flood.

Lest they might forget their origin, he was called Adam, that is "of the earth." Lest they might forget their Creator, and their dependence on their God, they were given a command not to eat of the fruit of a certain tree. That was all. It was a little thing, but a great and terrible evil was to follow. Although an apple was a simple fruit, they were ordered not to do so under the awful penalties of the loss of grace, of misery, of sufferings, of death and of damnation for not only themselves, but for all their children.

The prince of the fallen angels, seeing this new creature, man, so wonderful in his nature, so graceful and so perfect in his body, so sublime in his soul, knowing that this new being was made to take the places left vacant by the rebellion of the dark hosts who followed him to perdition, this arch-fiend was jealous of man. Lucifer, the arch-enemy of God was mad. He came to the first man and woman, to these beautiful temples of the Godhead, and entering into the body of a snake, he tempted Eve and she dragged Adam down. God having raised their nature up to his own sublime and incomprehensible essence, God left them. Human nature was left without this supernal influence of the Creator. God being law, could not continue with the creatures who would break his law, for that would destroy the very nature of God who is infinite law, order, obedience, harmony, etc. It was, then, in the very nature of God to draw back, to recede from nature, from this world, and from his highest creature, man. Adam, then, and the whole race were left in a state of nature, but in nature wounded, debased, and hurt, because the presence of God which completed his nature, was taken away, and therefore we all feel the absence of something, the want of one thing which would complete our nature.

The traditions of every tribe, tongue and nation are unanimous regarding this elementary truth of antiquity. They all preserve the record of the fall, dimmed more or less with myth and fable, still with the germ of truth, they all say: man has fallen from some original state of happiness in which he came forth perfect from the hands of his God. The testimony of the gentiles adds powerful proofs to the Jewish account. Everywhere it is the unbiased, outspoken witness of the human heart feeling its own wretchedness, and trying to explain human misery.

We don't always stop to think that whatever is found in nature, and in human society, is also found in God and that he made use of these things long before man. Now, in modern times, the representative form of government is spreading over the whole earth. Thus in Congress, in Parliament we have others who represent us, who act, and speak in our name, and by our authority. In their official capacity, they speak not for themselves, but for us, whom they represent. We speak and make laws through them. We can appoint another to act in our place, to be our agent, and we are bound by his acts. A man can work or do business, not directly, but through another. We can send a minister to another nation to represent us, and what he does in his official capacity, binds each and every person in our whole country. This is the nature of agency and representation. An agent or a minister is an intellectual instrument, which another uses to do his work. Let us keep it before our eyes for a little while.

When God created Adam he made him not only as the father and teacher of the whole human race, but also as the agent, and as the representative of all his children unto the end of time. He gave him that command not to eat the forbidden fruit, not only as a man in his private capacity, but also in his official capacity, as the ambassador, as the representative of the whole human race. He, therefore, committed a sin not only for himself, as a private man, but also a sin in his official capacity as the agent, and as the representative, as the ambassador and minister of the whole race. He committed that sin as a private man. That he had to satisfy as a private man. He sinned as the representative of all his children and by his official act. That is original sin. From him, our father, it has spread unto all peoples, and throughout all nations. It is not a sin properly called, for we could not sin six thousand years before we were born. Original sin is the absence of grace. It consists

in this, that we are born without grace, without the indwelling of God, in the state of wounded nature. If a man has a million dollars and keeps it, his children will be born rich. If he squanders his wealth, they will be born poor. That man commits a kind of original sin for his children, and the littte ones are not to blame for the sin of their father, committed long before they were born. Yet they have to suffer the miseries of poverty. His children and all his descendants will be perhaps poor, whereas they would be born rich, and have transmitted their wealth to their posterity, if he, their first father had kept his property.

Thus, by that one act of disobedience, the Creator was driven from creation, because sin is a breaking of the eternal law which comes from God, for he is the eternal law to himself as well as to nature. The whole nature of Adam was united with God, and as the soul gives life to the body, thus the Deity gave his own eternal life to Adam. But, in the instant of his sin, God departed and he died. From that time Adam and all his children were left without grace in a state of wounded nature. Man rebelled against God, and all nature rose against the images of the Deity. The human body formed of earth and living the live of the spiritual soul is subject to sickness, to weariness, to disease, to death. All men instinctively shrink from the cold, lifeless body of their departed friends wrapped in the dark embrace of death, because as by a second nature we all feel that we were not made to die. For death came by sin. This fear of death is in our reason or it is simple nature itself speaking loudly in us, for we are never so startled at the sight or thought of the death of an animal. Man, therefore, as we find him today, is not the man as he came forth from the hands of his Creator full of grace and truth. He is a fallen man. He still preserves in part his noble dignity and towers over the world, but he bears also the wounds of that fall. Each faculty in him has received a shock. The effects of some great upheaval, of some dire calamity, of some long past misfortune still presses heavily on each member of the human race, and the sons and daughters of Adam and Eve bewail their miseries in every land and in every clime.

The beauty of the human form which is surpassingly more graceful, more supple, and more harmonious than the most perfect animal, has lost that original grace which once shone forth in every line and limb. The taste given for the taking of food and liquids has been debased and tends towards drunkenness, gluttony and the narcotics. The eye

made to contemplate the beauties of nature sees no more in creatures or in the ceaseless phenomena of nature, the image of the Creator. Crude, physical nature revolts against us. We feel that we are dragged down by the weight of the body which is formed of mineral substances. We are all inclined to be lazy and seek our ease. Labor is irksome and a weariness to us. For the animals to seek their living is play, to us it is pain. The plant and animal get their food easily and without trouble, for us we must work. Even the rich find this world an inheritance of sorrow; for, if they have nothing to do they are the most miserable persons. Death, therefore, is repugnant to our nature; and the sorrow it causes and the misery it brings, both on the dying one and on his friends, all this comes not from God's original designs over man. For, God spreads happiness and joy with bountiful hand all over the world and brings not sufferings on his creatures. For, he being infinitely happy in himself, he made all to his image and likeness and he made them each one happy and full of joy like unto himself. Therefore, death bringing such sorrow and pain to human nature, was not in the designs of the God of nature as he arranged or ordained his creatures in the beginning. Animals were made to die, for they have no senses or understanding to know these things and suffer only physical pain.

But man dies because of, and as a punishment of sin. For, that original grace and innocence in which he was created came from the indwelling of God in him, and God communicated and gave to Adam and Eve to partake in and possess his own undying ceaseless existence, so that man in body as well as in soul, ever living, would better represent the ceaseless life of God to whose image and likeness he was made. As the soul is the life of the body, so God dwelling in man was the life of the soul. As the body without the soul is dead, so the soul without the indwelling of God is dead. So, at the moment Adam and Eve sinned, at that instant God receded from them and left them, and that instant their souls died because their mortal sin gave a mortal wound to their spiritual life. Adam, Eve and their children were created immortal, and death came through, and as a punishment of sin. Thus, the dead body is a striking image of the soul dead through mortal sin. Death came through sin and Christ died to wipe out sin. Thus, death in all men was wiped out or rather turned into victory by death in Christ.

The human imagination which brings forth sensible forms

of material things and which should act only at our request and under the command of our free will, this imagination is now frequently in rebellion and wanders all over creation and continually distracts our minds. It runs from image to image and only when quiet and at our rest can we study, contemplate or direct our minds. How hard it is to pray, to study, to think without distractions? What trouble we have in order to confine our thoughts for any time to one single subject so that we can investigate, study and master it? And when we have learned and understood, the subject looks so easy that we are surprised we did not know it before. Sometimes it seems as though we had a dim, distant thought or recollection, that we once had a knowledge of these things. All this made Plato say that the human souls were once created on one of the distant planets where we committed some great sin, and, as a punishment, our souls were condemned to exile on this earth enclosed in a body of clay with all its miseries where we expiate our sins. He supposed that, these truths which we now learn with such difficulty because of our weakened minds, are the remains of the knowledge we had in that other state of existence. Thus, the pagans who know nothing of the Christian religion, all these, without exception see in man the remains of the fall; although they do not know the cause, still they feel the effects.

The mind made by God to be like unto himself, that mind which pierces into the nature of things, which reads within and seizes the very nature of beings, that God-given and divine faculty in us is inclined to go astray, to make mistakes, and we all know that it is dim and blinded. We make many mistakes. That human intellect that brings forth a thought like the Father in heaven bringing forth the Son, that human mind is weak, fallible, and with all its power it is often deceived. In the same way, the will which should command and control each and every power and faculty of soul and of body, our free-will is feeble, and the passions rebel against it. We all know how hard it is for the will to keep the passions under its control. Each member of the human race knows the continual combat going on between the passions and the mind, between the flesh and the spirit, between the animal in us and our reason. It is not necessary to prove that some dire misfortune has shattered all our faculties and left our reason weak, and our passions powerfully inclined to evil. Each human being feels that in his members.

It is true that by the inventions of our times we have annihilated space, we have harnessed the great forces of nature and we bind them to do our will. But with all this, luxury increases and our wants are as great as ever, whereas true happiness, is, in the least number of wants, not satisfied. The earth which should each season bring forth a great crop for our food as it does for the animals, unless it is carefully cultivated, it produces thorns, briers, weeds, and barrenness for us. The animals which are below us and which in the order of things should be under our control, these rebel against us, and turn on us, and tear us in their savage embrace.

They were made for our use and benefit, and only by hard training and careful watching are they useful to man. It is also true that we have many tame animals, remaining subject to us after the fall of man, and which are brought up in a state of domestication, as the horse, cow, dog, etc., but they are few in species and numbers when compared to the wild animals, fishes and plants. And even the domestic animals often become ungovernable, and rebel against us.

Thus we see that nature has rebelled against man, its lord and master. No scientific theory will give us any satisfactory explanation of this surprising state of things—only the Christian religion tells us why nature has rebelled against man, because man rebelled against his Maker. Only on this ground can we explain the present fallen state of man and of society. But not only by exterior things, but especially by the continual conflict going on within us, do we see the remains of a fall. In other creatures all things go on with great regularity. Each faculty has its own object, and each power and perfection in mineral, plant and animal, is supreme in its own way, or subject to another power higher than itself. The animal comes into this world perfect. It weaves not, works not, neither does it spin, yet it is clothed with beauty by nature itself. The members of the mineral, vegetable, and animal kingdoms are complete and perfect in their own way. They get all they want, as food and covering from nature, and they do not want any other aids to perfect their being except what their natures furnished them with. But this is not so with regard to man. For no other creature comes into this world with the weakness and helplessness of a child. It appears that nothing could be weaker than a babe and live. The mother conceives her child in sorrow, and brings it forth in pain. Why is it that hours of suffering are passed, in order to bring forth a child,

and its first sound is a sigh, its first word a cry? Why is the human female so injured more than any other? In other animals the generation of a being like unto themselves, which in all creatures is a figure of the Trinity, is their highest act, and they are not ashamed.

But in man the generation of another like unto himself, is a more perfect figure of the generation of the august Persons of the Trinity, for this new being is a compendium of the universe, and will live as long as God will be God, because it has an immortal soul and will not perish, like the animal. Yet we are ashamed of this generative act, the highest and noblest of the vegetable powers. From our very origin we carry the marks of the fall of our first parents, and because of that we are ashamed.

We must be covered so that others cannot gaze on our nakedness, and the more civilized are the sons of men, the more sensitive they are in this, for it appears that then they feel deeper the degradation to which the human race has fallen. Thus, savage and uncultured people think nothing of being seen only partly dressed, while that would not be tolerated among cultivated communities. Why is it that no animal needs to be covered, while man always needs some kind of covering? Why are we so ashamed of one another relating to these things? At first, and when we are little, this is not so; but when we get the use of our reason, our lower nature rebels against our reason, and this conflict lasts till death closes over us.

Only in the human race is this continual conflict between reason and passion going on. Thus, in man each power and faculty has its own object, but as in the rest of nature, also in us, the lower should be subject to the higher, and passion to reason. But this is not so in man. The passions were given to every man in order to guide him in his acts, for the preservation of himself and of his race. But now these human passions seek their objects independently of and contrary to reason. They are like so many unruly and disobedient children rebelling against their parents, the mind and will. We exercise our passions contrary to the dictates of conscience, and that is sin. There are continual conflicts in us which each one feels, and which want no proofs, because they are so evident to us all, and this is so because the human race abused reason, and is now paying the penalty of that first fall we call original sin. Let no one say that these passions are bad, because all God made are good, and these are good for the preservation of the individual or the

whole human race, and without them man would vanish from this earth. Not the use of them, therefore, but the abuse of them is sin.

We need only draw the attention of the intelligent reader to a few of the other marks of the fall of man. The animals are happy and contented in their own state, while man upon this earth is never satisfied. The animals in a state of nature, follow their blind instincts, and they are never, or rarely sick, while all men are more or less subject to various kinds of illness. It is true that domesticated animals are sometimes sick, but that comes from their artificial mode of life, brought on by man's ignorance. In man much was left to the light of reason regarding health, but, since the fall, reason has been dimmed, and does not always guide us right regarding the laws of health.

Then this continual conflict between reason and passion, which each one feels, this turning of passions to their own gratification, independently of, and contrary to what is right, this tendency to wrong when we were all made to tend towards the good, all this shows that we have fallen from a higher to a lower state, and that man is not upright as God made him in the beginning. In fact he is not a perfect, but an injured being. In examining other things as we pass all through nature, till we come to man, we find each creature perfect in its own way. Amid all the expanse of space, and among the countless creatures of this visible universe, man alone is the only injured, fallen, suffering creature. He is the only imperfect being we find. He bears the marks and carries the scar, and shows the remains of some deep-seated wound piercing into his very nature, and shows it in all his powers, passions, and propensities. This is seen in the continual conflict going on between the passions and the mind, between the flesh and the spirit.

It was necessary that the nature of Adam, who had sinned, would wipe out that sin, and the sins of all who carried human nature, that a child of Adam, should come and wipe out the iniquities of all flesh. That no creature could have done; for a creature being finite, and sin being infinite, nothing finite and bounded could satisfy the infinite and unbounded. For that reason the Son of God came down from heaven, and taking human nature, assuming in that nature all created beings, represented by man, in that way in him all nature sent up to his eternal Father that cry of agony from the cross, that prayer of forgiveness from the dark shadows of Calvary.

No wonder, then, that all nature trembled, and that the sun was darkened, for in Christ all nature suffered. He bore the iniquities and sins of his own race, when he bore the nature of Adam, and of us all in becoming man. He took upon himself our nature, and in that fallen nature, he took also all the sins of each member of that fallen, sinful race.

The conception and birth of Christ were altogether unusual, superhuman, and supernatural. He was at the same time God and man, and not like any other man. Therefore he was conceived and born different from other children. He was born from a mother without a father on earth. As he was both human and divine, so we find both human and divine elements in his birth and in his life. He was twice generated. Once he was and is always being generated from his Father in heaven without a mother, and again he was once generated from his mother on earth without a father. From one he received his divine nature, from the other he received the human nature.

His body was formed like ours in the womb of his mother, to whom the Holy Spirit, by a direct influence of supernatural power, gave the virtue of fecundity, and he was born of her, and still she remained a virgin as before, because a virgin is the highest type of womanhood, and it was decreed that God would be born of a perfect, but not of an injured or sinful woman. He was not an ordinary man, and therefore his conception and birth were extraordinary and miraculous, because he came to do the most wonderful and miraculous works, to redeem and save us, his brethren.

Therefore his body came not from heaven as the Valentineans said, nor was it made of air as heretics say. He was not born of an earthly father, as the infidels think, but he came from a woman, from whom he received his human nature, because he came to redeem that human nature, debased and fallen by the sin of his father, Adam. If his body had been made out of the side of Mary, as was Eve out of the side of sleeping Adam, there would be nothing natural in the birth of Christ. All would have been miraculous, and Mary would not have been his mother, as Adam was not the father, but the husband of Eve. In his conception, then, we find both a natural and a supernatural element. His body was formed of the purest blood of his Virgin Mother, in the same way that the mother's blood naturally furnishes the materials of which our bodies are made. Whence she is his mother, the same as the one who bore us

is our mother. But this conception did not take place in the natural order, as the conception of other children, for Christ had no earthly father, and he was both conceived and born without destroying the virginity of his mother.

Whence that wonderful conception of our Lord took place without original sin, for he was God and man, and he could not sin. He came to save sinners. That was a work not purely natural, as other conceptions are, but partly natural and partly above natural laws. It took place in a most pure virgin, without in the least injuring her purity and her virginity. It was not forced on her, but her consent was first obtained by an angel, for God made us free and respects that liberty he gave us. The Holy Ghost did not fulfill the duties of a man, but gave fecundity to the feminine element and then he presided over the formation of the body of Christ.

Science and learning were given Adam at his creation, so that he could teach his children and transmit to his posterity learning and knowledge as well as other heavenly gifts. This learning was dimmed at the fall. Little by little, as ages rolled by, the sons of man forgot the knowledge of God and of heavenly things given Adam, and the human race fell into barbarism, idolatry, infidelity, impurity, savagery. How was all this to be repaired?

Sin is a deliberate rebellion against the infinite Being. In that it is an infinite offence, and justice demands an infinite compensation. All creatures are finite, and therefore no creature nor all creatures which God could make all together could compensate for even one sin, to say nothing of the numberless sins of all mankind. God cannot suffer, or change, or remit sin without compensation, for justice, before it is satisfied, requires a just restoration.

What was to be done in this case. Human nature was against its God in the person of Adam, and human nature had to repair the injury done by not only Adam's sin, but also for all the sins of Adam's children, spread throughout all ages, climes, and nations. The Eternal Son of God in Christ took simple human nature in the body and soul born of a woman. He placed the Second Person of the Trinity in place of the human person in each of us, and thus he raised our nature to the height of the throne of the eternal Deity. Behold, what a wonder! Still keeping in mind the idea of an agent or a representative, we must remember that as Adam represented all the members of the human race, so Christ represented all human beings, all his brethren who

ever lived in human flesh. That same human race, represented by Adam, who had sinned, is now represented by Christ, who did not sin. Adam, the first father of the whole race, is replaced by Christ, the second father of the same race. The old nature of Adam which was corrupted, debased, defiled by sin, is raised up by Christ to the new nature of the same fallen race, by the wonders of the Incarnation of Christ, who was perfect, pure, undefiled, and ever faithful to God's laws.

Now, we have a pure human nature in Christ, without a human person, but in the place of that human person is the Person of the Son of God, the Second Person of the Trinity. All actions and qualities of the nature being referred to, and belonging to the person, and all partaking of the dignity of the person, all acts, sufferings, merits etc., belong not to man but to God, for the nature of Christ belongs to his Person to whom it is united.

Then, in his representative character, Christ was the agent of all the sons and daughters of Adam. He represented each and every member of the human race. He took upon himself not only the fallen nature of Adam, but also the sins of the whole human race whom he represented and expiated when upon the cross. Thus, as one man, Adam, dragged us down, so another man, Christ, raised us up. He was the first and greatest, and only original High-Priest, who offered in his own human nature the whole compendium of creation as a peace-offering to his Eternal Father, as the price of the redemption of the fallen human race. In him all nature sent up a vast cry for pardon and mercy. He took upon himself our sins on Calvary, he carried all our iniquities and trangressions. No wonder that the Father looked down that day and saw no beauty in his only begotten Son, covered, clothed, and saturated with the crimes of a whole race. For that reason the Father deserted him, for God thus hates sin, that he could not bear it even in his own eternal Beauty, his only begotten Son.

Christ, therefore, represented all mankind at the crucifixion. There the justice of God was satisfied.

In the same way, each regularly ordained clergyman represents Christ, and his public and official life is carried out as the agent and ambassador of Christ. Christ speaks through him, acts through him. For, being one man, he could not go into every clime and nation, and preside over each Church, but he does so through his regularly ordained ministers, who by Holy Orders are raised up so as to par-

take in his own eternal Priesthood. Although Christ died for all men, this salvation and redemption is not dealt out with wild, irregular scattering, but with discretion and only to those who comply with the conditions, and fulfill the law, reform and try to do better.

The grace of redemption is dealt out by the Sacraments. For by Baptism we are born again, and have Christ for our father; by Confirmation we get our full spiritual growth as Christians, by Communion we are fed, by Penance our sins committed after Baptism are wiped out, and by the last Anointing the remains of sin are taken away. By Orders we are elevated up to the partaking of the Priesthood of Christ, while in Marriage, grace of fondness and of love is given husband and wife, to fulfill their duties towards each other, and towards their children. Thus the material life of a man is but an image of the spiritual life God himself plants in our souls.

Thus we see that the idea of the ambassador or representative runs all through the Christian religion and from the Church the nations of Christendom learned it, so as to spread true liberty into every clime and secure nations and people from the tyranny of kings, rulers and oppressive governments. Thus, the clergyman represents Christ, not the people—each priest, bishop and Pope, speaks not his own words, but the words of Christ. He preaches not his own doctrine but that of Christ and of the Holy Ghost as found in the Bible and in Christian tradition. These two form the constitution of the Church. As we have the Supreme Court to interpret to us the constitution of the United States left us by our wise forefathers, so we must have a supreme court to interpret to us the constitution of the Church left us by Christ when he founded his Church and gave it full power to teach and to preach in his name.

We thus understand, that as the clergyman represents not the people but Christ, so the people are not the judge of his actions but his superior. For the law is so just that it says that each one accused should be judged by his equals. But the congregation is not the equal of the clergyman, and therefore the people is not his judge. All through the Church, therefore, we find the one-man-power and that one man is Christ, the God-man. But not irregularly and according to the caprices of men, but according to the constitution laid down by Christ, and elaborated by the laws of councils and of Pontiffs directed by the Holy Spirit, only by these wise laws are Church matters regulated.

The Spirit Kingdom.

CHAPTER XXIV.

The Difference between the Spiritual and the Material.

The material forms the physical and corporal world around us, while the spiritual composes the unseen living spirits, endowed with mind and free-will, which we cannot see with corporal eyes, but which the mind sees by a process of reasoning and through their effects. Of them also we learn by reason and by revelation. The material bodies have their modes and accidents, which act on the five senses of man and of animals, and by these alone their presence is made known to us. The senses see only these modes, accidents, or qualities of bodies, and the five senses cannot go beyond these modes or accidents of bodies. But the mind penetrates in and beyond the corporal modes and accidents of bodies. It rises above the effects to the causes which produced them, and by its own inborn power it sees and perceives these various material substances hidden under these physical accidents. All those material things having modes or accidents acting on the senses as material bodies, and they altogether compose this visible and material world. But there are many other material things which do not act on the senses. We know them only by their effects. Thus, we cannot see the air we breathe, nor do we see the gases, as hydrogen, oxygen, etc. Again, we cannot see the light, although we see all things by the light. Whence it would not be right to say that the material is that which we see

with the senses, while the spiritual is that which we cannot perceive by any of the five senses, for this would not be strictly true.

The material is that which has extension, and the spritual is that which has no extension. This is the true definition and substantial difference between these two great orders of nature. That which has extension has parts, and that which has no extension has no parts. Hence, all material things are composed of parts having one part outside of, and beyond the other parts while the spiritual has no parts. The spiritual is always one, whole, complete, and entirely simple, and without extension. Again, a material thing always exists in some time and place. It is now here, or there, or somewhere, while the spiritual does not exist in time or place, as place and space and time are qualities of bodies, but not of spirits. While a body or any material thing must have some place in which it is situated, a spirit may be in any or every place, or in no place, because it has no material qualities with a place and space in which to exist. All bodies exist in time, and the movements of material things give rise to the past, the present, and the future. But spiritual things do not exist in time but in eternity. Time is coming and going while eternity is the ever present of God. Therefore, living, simple spirits, ever exist in the present with God, as we know that the mind ever contemplates intellectual truth in the present, and intellectual truth has no past or future because it is eternal. A substance is that which exists complete in itself and therefore it is entirely independent of any other. There are two kinds of substances which compose the material and the spiritual kingdoms of nature. Material substances are the lowest creatures which God made. They dimly represent him in having being and in existing in order by that to represent his own eternal Being and ceaseless existence. But there are other beings which not only exist but also live. These better represent the ever living God. The animals exist, live, and acquire a kind of knowledge of material things by their five senses. They are the lowest creatures which know. Man exists, lives, obtains knowledge of surrounding objects by the five senses. But man has also mind by which he pierces into the intellectual truths and the reason of things, and he has a free-will by which he seeks the good, the possession of which makes him happy. Mind and will in man form his pure reasonable and spiritual part. By that he is like the pure angelic spirits who dwell with God. These spirits are above

and entirely separate from the crude changes and mutations of matter. Therefore, the spiritual form or living principle of plant is entirely buried in the material organism of the vegetable. The vital principle of the animal is also plunged into the material body of the beast, but the animal by the five senses grasps the first dim glimmerings of knowledge in the information he gets of surrounding objects. But man has all these, and besides he has reason, that power or that faculty of the soul, formed of mind and of free-will, which form his reasonable part which is above matter, and which produces its acts without any corporal or material organ. Man, therefore, is both material and spiritual. He is material in his body, but spiritual in his mind and free-will. His reasonable part, therefore, is spiritual and his body material. Thus we see, that there is a regular harmony, gradation and order from the lowest material body or mineral, up through the various kinds of vegetables and of animals, through man to the angel, who is a pure spirit endowed only with the two faculties of mind and of free-will.

The simple material, mineral or physical creature does not live. Thus there is no life in the stone or in the mineral. The plant has the lowest kind of life. Animal life is still more perfect, while the highest life upon this earth is the intellectual life of man. In that especially he represents the ever living and intellectual God. Every pure spirit lives and lives forever. For it was made especially to the image and likeness of the living and eternal God. Therefore, every spiritual substance is also an immortal living being. Not only that, but having no parts, no extension, being simple and incorporal, no substantial change can ever take place within its nature. Therefore, every spiritual substance, living separate from matter, is also by its nature immortal and can never die, because there is nothing in it to deteriorate, to change and to decay. The angel, then, as well as man's reasonable soul in this represent the immortal and ever living God.

God has a mind from whence comes forth the eternal Son, and a will from which proceeds the sanctifying Holy Spirit. As God is a pure spirit, he made the pure angelic spirits to represent him in a more perfect manner than man. And for that reason the angels have each only a mind and a will, so that they are in this way more simple and more spiritual than man. For man has many other vegetable and animal powers and faculties besides his spiritual mind and will. The mind and will are his pure spiritual fac-

ulties. But his many lower powers animate his body, and give both vegetation and animal life to his bodily organism. Thus, while man has twelve faculties or powers in his soul, the angel has not all these, but only mind and will. In this then, the angel more closely resembles God, who has only the two reasonable faculties, mind and will. But while mind and will of the angel are faculties or powers differing from the angelic substance, mind and will in God do not differ from the divine substance. For in God his mind is himself and his will is also himself, and they do not differ from his own divine substance. Hence the Son, who is the only Begotten of the divine mind, is also God, equal to the Father, and the Holy Spirit, who proceeds from the eternal will is also God. Then the awful simplicity of God is such, that he has only one attribute, and that is his undivided, eternal Substance.

Material bodies act on our senses by their accidents. But spiritual substances, having no accidents by which they might produce their effects, they have special powers or faculties by which they act. Thus the immaterial vital form of the plant has the three faculties of growth, nutrition, and reproduction. To this we must add the various animal faculties which we find in the beast, and in man we find twelve powers of his soul. The angel has only two, mind and will, which God also has. But in God the mind and will are himself, not special powers or faculties as in the creatures he made to resemble himself. Whence God having no special powers or faculties he acts by his own divine eternal substance in generating the Son and the Holy Ghost. Therefore God is the purest Act, and these Three are one.

There would not, therefore, be in nature a perfect regularity and a gradation of creatures from the lowest mineral up through vegetables, animals, and man, up to God, unless there were created reasonable beings, entirely independent of, and separated from matter. For this then God created the angels as pure spirits. For no material thing, or mineral substance can live alone and without a vital living principle, which animates it. No material or animal body could ever understand or have free-will, for that is above the corporal senses which see only the particular, here and now, while mind sees the general and the universal truth now and in the present. Therefore the angelic spirits stand half way between God and man. They lead us from the latter up to the former. We, in this life, do not always think. In deep sleep the mind is a complete blank. But the angelic

mind is ever at work, nor does it sleep, rest, or tire, because it is enterely free from matter and it is even active by its very nature. Their gigantic minds bring forth truth, and their will the good, and all that, ceaselessly and forever. In that they resemble the Godhead whose mind is ever active, never ceasing from bringing forth the Son and whose will all the time produces the Holy Spirit.

We are surrounded on every side by material things which all together form the visible world we see around us. But not only are we surrounded by corporal objects, by the invisible gases, by the ether which penetrates everywhere, but we also dwell in, as it were, a vast ocean of spirits, which are everywhere, but which we cannot see, for they do not act on the five senses. We see them only in their effects. God is everywhere, and by his own immensity he fills all space. We do not see him now directly, face to face. We see him in his ceaseless works in nature. We know him by natural reason, and we know his glories by revelation.

Man, being a reasonable animal, he must get his ideas from the images of material things. He has not the powerful angelic mind, which has the innate faculty and great supremacy of seeing truth directly in itself. We must abstract truth from material things. The first beginning of truth then, for us, takes its rise in material images. Our reason, being tender, weak, is liable to error, and our reasonings are often faulty. We are composed of a body and a soul, and this body of clay involves and drags down the immortal soul by its own heaviness and weakness. Therefore we are more allured and attracted by material than by spiritual things. Therefore by our nature we incline to the material. It is always easier to go down than to go up. We are not then surprised to find that men are more attracted by the visible, than they are by the invisible world. The material world we see by the senses, while we see the invisible world only by the mind. But the mind cannot act in our present state without the imagination, the senses, and the nerves. Therefore it is easy to forget the spiritual, and to think only of the natural things of this world. For that reason it is not easy to get men to work for the unseen world. They would rather have and enjoy what they see and touch and hold, than those things they cannot see. All this shows the ease with which men fall away from religion, and from God. It shows us how the world has got into the custom of money making, how commerce and inventions have spread, especially in these modern times. All this is good and we are a

lover of all the wonderful inventions of our age. But there is an exaggeration in these things. There was a time when chivalry was honored. Then came an epoch when learned men were esteemed. Now it is money. The richest man is the greatest man in the eyes of others. That is a great mistake, as the spiritual is vastly superior to the material, so men should look after the offices of religion, after his immortal soul which lives forever with God.

How hard it is for little minds, to rise an inch above the ground, and with what difficulty we put away the forms of material things, and with the mind contemplate eternal truths in the still serene atmosphere of reason. Here is where the good, the learned and powerful minds of this earth find rest, repose in real joy of this world. Real joy only consists in seeing truths, in studying nature, in contemplating the wonders of God. What a pleasure it is, for brilliant minds, well directed, well instructed and trained to look abroad upon the universe of creation, to rise from that up to the wonders of the Church Christ founded for our salvation, to think of the glories of God's love, goodness, truth and beauty we find in all nature and to see in each creature an open book, wherein God has written so eloquently of his own eternal perfections. But to rise from that to the sublimity of God as he is, not in the order of nature, but in the vastly more sublime order of grace, as he communicates his own divine nature and supernatural life to his reasonable creatures. There is where we really find his wonders. The mind grasps and feels stunned and stupefied to think of God in his awful greatness coming down to lift up man from his weekness.

We feel astonished at the bright minds we find with such vague ideas of religion, false thoughts of God, all working and wasting away their lives for this visible world, which passes away, and thinking not of the spiritual things which last forever, and wherein alone the reasonable part of man will be satisfied. What a pity that a false philosophy has poisoned the human mind and turned it from God, that men would in their own ignorance say that religion is opposed to science, or that there can be a conflict between them, when science and religion are both children of the same heavenly Father. For science and religion are both revelations of the eternal Being. Science shows us the wonders of God in nature, in this visible world, while religion goes farther, and shows us God as he is in his own incomprehensible being, as above and superior to nature.

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One shows us the Creator in his own external works, while the other tells us of him as he exists in his internal Being.

To see God still farther in his works, we must examine his highest creatures, the angels, who were made to represent him in a still more perfect manner; they are pure spiritual beings above and independent of a material body such as man is endowed with. The study of the angels then will be the subject of the following chapter.

CHAPTER XXV.

The Angels.

What we will write relating to the angels, is the sum and substance of the learning of the human race. We draw this information from the Bible, from the traditions of Christianity, from the writings of the learned, who have gone before us, and from a series of reasonings founded on sound principles relating to the spirit kingdom.

We read that in the beginning God created Heaven and earth. Heaven means the angels, and earth signifies the material, physical world. He made them pure, living, spiritual creatures, with great powers, and in perfection and in nature far superior to man. They have no body, because they better represent God, who has no body. They may then be considered as created forces, ever acting by their very nature.

Scientific men recognize in nature certain material and physical forces, as light, heat, electricity, gravitation, etc. They are the forces of matter. They can never be destroyed. For we can change them and transform one force into the other, or use them for our own benefit, but to destroy or annihilate them requires an act of God who created them to rule matter. The discoveries of modern times tend to show that these material forces are only so many modifications or manipulations of one primitive original force in nature. If that is so, is not this one primeval force God, who acts everywhere through nature, and uses the created universe as his instrument? Now, the angels are pure, spiritual created forces. But force cannot be seen, nor has it any weight size, shape or color. For all these are modes or accidents of matter, which act on our five animal senses. We cannot see force. We only see its effects. The angels being spiritual forces, we cannot see them with the senses. We see them by their effects, and from these effects only can the mind judge of their existence. Therefore, while reading the following pages the reader must use his mind, not his senses or his imagination. For these being

animal powers, they cannot rise above the material objects, while the mind being purely spiritual it alone can see spiritual things.

The material forces being the actions of crude matter, they do not live. But the angels, being superior to man, they live, like him; but having no body, they have no vegetable, sensitive, or animal life. They live only a pure intellectual or reasonable life. But all reasonable beings have in a superior way all the perfections of the lower creatures. We must study the intellectual life of man in order to understand angelic life. Man's intellectual life consists in mind and will. Then the angels have mind and will. In the exercise of these two special, reasonable faculties, mind and will, their intellectual life consists. The mind ever seeks the true, the will desires the good. The angelic mind ever seeks the True, that is the Son of God, while their will possesses the Good, the Holy Spirit. Thus they live the supernatural life of God, living on the True, the Son, and on the Good, the Holy Spirit.

But they were not always thus. They did not at first see God face to face, and live on him as they do now. They were created, at first in a state when they did not see Truth directly, and in himself; nor did they possess the Good by God's own nature. For to see God face to face, and to live his life and partake of his eternal joys is so great a happiness and it so transcends all created things, and such an abyss separates the infinite God from even his highest creature, that reasonable creatures must first merit that boundless gift. Therefore, God made the angels in a state, where, like man in this world, they did not see the Almighty directly and face to face. They only saw the Son in the perfections of their own nature, for each angel was made after the model of the Divine Son. Then, in themselves they saw the image of the Son of God. Each creature God made is good. And the angels being good in themselves, they saw an image of the Good the Holy Spirit. By their minds, they saw created truth and by their reasonable appetites they desired things, their own good, the possession of which is happiness.

All this they saw at first, but dimly and through their own imperfect natures, as now we see God, not face to face but in the perfections of surrounding creatures. They had not, therefore, a perfect complete knowledge and love of God. But they should have remained subject to their Creator. But they all did not. The first acts of their minds

should have been to know him, the Son, and the first desires of their will should have been to love him, the Holy Spirit. But while two-thirds, exulting in gigantic mind and will, tended directly towards the Creator, one-third turned back, and fixing that first act on their own perfection, they refused to receive truth from the Son, and happiness from the Holy Spirit. Thus they drew away from the eternal fount of Truth and Goodness and they would not serve their Creator. Thus, while these who remained faithful to the light of reason, and to the dictates of conscience, they by that merited heaven, they were rewarded by the direct vision of God. The rebel angels were at once cast out into outer darkness where there is no supernatural truth, no supernal goodness.

When God created the angels we know not. He made them, not they themselves. For they could not have made themselves before they existed, because they could not act before they were. God alone is from eternity, and all besides him were made by him. He is alone his own being, and all creatures have their being and their existence alone from him. The angels were the intellectual lights which burned with pure reason before the creation of the material sun, moon and stars. The writers of the Greek Church say that the angels were created before the corporal world, while the Latin writers hold that they were made at the same time that God brought forth this world from nothing, so as to complete the ranks of creatures from the lowest stone to the highest intellectual and angelic creature. In this way the angels, being pure, reasonable beings, they represent God in a more perfect and more complete way, than any other creature below them. Then they complete the universe of God's creation. Thus we see that we rise step by step from the minerals up to the angels; all tell us of the perfections of God who created each to his own image and likeness.

We have seen that the species of vegetables outnumber the elementary minerals, that there are a great many more kinds of animals than of plants. Again, the large animals are becoming extinct, to give way to man, who is rapidly spreading over the whole surface of the globe. From this we learn, that the higher we advance in the order of creation, the more numerous we find the kinds and numbers of creatures. Whence we rightly conclude, and both revelation and tradition tell us, that the number of angels is very great, and that they vastly outnumber all the species of material things which exist. They are not more numerous

than the drops of water in the sea, nor the sands of the sea-shore, but they greatly outnumber the different kinds of species of visible things.

Because they are free from, and not individualized by matter, each angel is partly universal. Each angel is a species of its own, so that no two resemble each other. We see something like that in this world. For we never find two persons exactly alike. The angels differ from each other, regarding the more or less truth they have, or regarding the developments of their minds, and in attaining the good by the will.

We can scarcely realize the perfect state of these heavenly spirits, who were made so complete as to be entirely separated from, and independent of the changes and imperfections of material things. They ever drink in heavenly truth at the very fountain-head itself, the Son of God, in whose presence they ever stand. There they always contemplate his exhaustless perfections. We have only imperfect minds and wills, because we are now united to a material body and our mind sees truth only through the dim veil of material creatures. We must here below abstract truth from the material forms given by the imagination, and therefore in this life we see but dimly, and as in a mirror, the wondrous truths of God revealed to us in nature and in revelation, and in our own interior consciences.

The human soul standing on the brink of the singular and of the universal, bridging the vast abyss which separates the spiritual from the material, man being the lowest and most imperfect of intellectual beings, his soul is united to a corporal and material body; and from the material forms and images of this material world he rises to the contemplations of the supreme and spiritual truths of the reasonable order. When we rise to the study of angels, who are reasonable creatures without a body, there we find a more perfect reason and a more powerful intellect and will. Whence the angels, being pure intelligent spirits, they cannot be seen by corporal eyes, or perceived by any of the five senses, because they have no bodies and no corporal accidents or modes of matter, which can act on the animal senses of man. It is true that we often see them pictured and sculptured in the forms of human shape, often with wings, because of the rapidity of their intellectual acts, and with child-like faces, for they are ever young and never grow old, or die. They eat not, neither do they work, but they bask in the bright light of everlasting truth, which ever

flows in ceaseless streams direct from the eternal Sun, the Truth of God. They ceaselessly drink in those rays of indescribable goodness, which they draw forth from the Holy Spirit, the satiating Good. When they appeared to man in vision, they took on, and animated a corporal body, but only for a time. By that they foretold the Incarnation of Christ, who at length came as God, and took our nature, and walked this earth as God and man.

Each corporal substance having length, breadth and thickness, is in place, while the pure spirits, having no extension, are in place only with regard to their power. Thus the soul, by its power, extends throughout and is in every part of the body, and it is whole and complete in each and every part of the body. It is in the muscles to move them, in the stomach to digest, in the eye to see, in the mouth to taste, etc. God is in the whole world, not as in a place, for no place can contain him who is the infinite Universal, and he cannot be bounded by any or all creatures, for they are finite. Therefore a spirit may be considered as a force or as a pure power, entirely free from matter. The divine substance of God is infinite and he is the cause and Creator of all things. He is everywhere extending, sustaining, and directing nature in all its wonderful works. He is in the universe, whole and entire in each place, somewhat as the soul is in every part of the body presiding over, and directing all the vital actions of the human body. A material thing is in a place where it is situated. The human soul is within the body. An angel is in the place where it exerts its power, while God is everywhere with all his infinite and measureless substance and power. As an angel is in a place where it exerts its power, so many angels cannot be in the same place at the same time and each exert the same power, as two or more souls cannot animate the same human body at the same time.

A body is in a place and contained by the place, while a spirit is in a place as containing the place and there exercising its power. Therefore, the body does not contain the soul as a vessel holds a fluid, but the soul contains the body and in that body it exerts its various vital powers and operations. The soul does not leave the eye when we see a thing, and then move into the muscles of the hand when we want to grasp the thing we see, for the soul is at the same time entirely in the eye and entirely in the hand as well as at the same time in all other parts of the system. Thus, in the body, it exerts its powers by the various and diverse

organs of the body. So it is with God. He does not pass from place to place in exercising his power throughout nature, for he is everywhere and whole and entire in every part of the universe; for he has no parts, but he is the supreme, Universal, everywhere present. But God does not animate nature as the soul animates and vivifies the human body, because God is a pure spirit and has no body. For to be plunged into matter like the soul is an imperfection for any spirit, and God has no imperfections. He is entirely separate above and independent of matter, he does not animate this world as its soul but he directs the movements of matter. Then the movements of the stars and planets are under his control. Here he shows his regularity, for with the finest astronomical instruments and time-pieces, we find that the movements of the earth have not changed in the slightest degree since man first began to measure time. The same may be said regarding all the other planets and heavenly bodies. How regular we find the course of nature. The attractions of gravitation, the laws of electricity, of galvanism, etc., never vary. They are ever the same. God presides by his universal presence over all the movements of crude, physical, material things. From their regular movements we may conclude what must be the harmony and regularity of God. Force rules all the phenomena and changes of nature. It is everywhere. It appears as gravity, as attraction, repulsion, movements of the planets, etc. That comes from God or from a spiritual creature which God has made to his own image and likeness. Whence the great force in nature is God, the only self-existing force in the universe. He is the primeval power and force in the universe, whence coming from him force cannot be destroyed but only changed.

The vital principle of plants, the living soul of animals, the immortal spirit of man and the pure angel are created, living forces. They were all made to represent that eternal force we call God. But these created forces cannot be in many nor in all places at the same time, for they are creatures, bounded and limited in their power. Whence the plant, animal and man are confined to the organism in which they live. The angel is confined to the place wherein it exerts its power, and no angel can be in many places at the same time, for its power is limited. But God being in every way unlimited, universal, infinite, he can be in all and in every place at once, he exerts his measureless power and force all through nature. He is within, and without,

and beyond all created things; for he is the universal, the general, the abstract and the infinite, not only in his divine Substance, but also in his limitless, measureless, almighty power.

An angel has no size, no length, breadth, or thickness, as these are qualities of bodies but not of force. Whence an angel being a living reasonable force, it can pass from place to place in an instant, and exert its force and power in one place or in another. But it must pass from one thing to another in order to exert its power in material creation.

We have seen the rapidity with which the electric pulse passes through silver wire with the enormous velocity of 282,000 miles in a second of time. And it is reasonable to suppose that the angel, who is a living intellectual force, separate from and independent of matter, can pass from place to place with greater quickness. But although it can move and pass from place to place with amazing swiftness, still that velocity can be measured. For only God exists everywhere. In order to exert his power it is not necessary for him to pass from place to place, for he is whole and complete in every place. At once and in an instant he can act in any place with his own boundless and infinite might.

Because the angel is a reasonable being, it has therefore a mind and free-will. It thinks and desires like man. For mind and will in action make reason. The mind and will are the only two faculties which the angel has. These two, mind and will, are faculties which differ from their substances. Only God has a substance, which thinks and wills by itself and without any special faculties. Therefore, because of his own undivided simplicity, God's mind and will are his substance, essence and nature. The divine mind and free-will are not faculties distinct and differing from his nature. They are himself thinking and willing. In thinking he brings forth his only begotten Son, and in willing he brings forth his own divine Spirit and both form his eternal essence. All Three are the Persons of the eternal Trinity, therefore having one and the same divine nature.

It follows therefore that the angel, like man, in thinking, brings forth truth and in willing it seeks the good. The true and the good then remain within them. But the true and the good within the human or angelic minds are not living and reasonable beings, like the mind and will from whence they spring, because they are created and imperfect minds. But in God, in thinking, he brings forth the Son, who is a person, and in willing he gives spiritual birth

to the holy Spirit, who is also a person. These two divine Persons are infinite and eternal, and both are equal to the Father. Then these three are one. In God then his substance understands and wills and by these two acts he brings forth the Son and holy Spirit, and all three Persons have but one and the same divine nature.

There are times when we do not think, as in infancy and in sleep. The human mind then does not always act. To act is the perfection of creatures, and the more perfect their acts the nearer they are like unto God, whose life is the infinite act.

Therefore in man is the passive and the active mind, or the mind doing nothing, or the mind thinking. But this is not so in the angel. For this powerful heavenly spirit, not being obliged to abstract and universalize thoughts from the images of material things like man, the gigantic mind of the angel is forever at work, forever thinking. It does not tire, for it is not united to a material body which drags it down like man. Their powerful angelic mind does not understand all by its own nature like unto God. But it understands by its mind, by ever grasping the universal images or in seizing the intellectual reasons of things given it by God. God understands all by his own divine substance, which contains all the reason of things, and the reasons of things is the Son to whose image and likeness all things, especially angels, were made.

The human mind is a faculty of the soul united to a material body. The human mind then receives its images from surrounding objects, through the senses and the imagination. For that reason, we think only when the imagination is at work in us. But the angelic mind, being above our mind, has its own intellectual superiority. The angel does not think therefore by its mind, drawing from, and abstracting the material images of the imagination and thus making them universal for it has no imagination. But there are in the angelic mind intellectual images which it uses in thinking. These images are the reasons of things. So that each angel, in thinking, brings forth intellectual ideas, the reasons of things. In this the angels more perfectly than man resemble God, who in thinking, brings forth the Reason of things, that is, his Son. The more perfect and the higher the angel, the more universal and perfect are the reasons or ideas it brings forth, because the higher it is, the more perfectly it represents the Father, in bringing forth the Son, who is the Universal Reason of all things. We bring forth intellectual

images or ideas, by the mind. But in order to do that, the imagination must be at work abstracting material images from the particular forms of material objects, furnished by the five senses. But the imagination of man, not being now under our control, as it would have been but for the fall, our imagination works too rapidly, too badly, or too slowly, or it wanders, and that distracts the mind. We may imagine the strong powerful mind of the angel, made to see truth directly in its very fountain-head, the Son of God, and we can fancy how that mind works without any distraction caused by the sensible images of the imagination, or by the disturbance of surrounding objects: for they have no senses, no imagination, and therefore, they have no distractions caused by material things.

The angel, then, being a form without matter, a soul without a body, a living reasonable power, an invisible force, the angel thinks without using material images like man. It has, therefore, a more powerful and more perfect mind than man. In thinking, the angelic spirits use their own spiritual substance as the images by which they bring forth their ideas. As the mind is above all creatures below the intellectual order, as the mind contains all perfections below it, so the mind of the angel brings forth intellectual images from its own pure substance, and these images, or intellectual ideas in the angelic minds are the reason of things. In God, the Reason of things is the divine Son, the eternal Reason of God. But the angelic mind was made to forever contemplate these eternal reasons of things, that is the True. According to him, the True, the Son of God, all things were made in heaven, and on earth. He is the Reason, the Model, and the Plan of creatures. From him then, as from their eternal source flows down on created intellects, the light of created minds, the reasons of all things. For the reason found in man and in angel is but a partaking of the eternal Reason of God, who is the Son. These created minds of intellectual creatures, were made to see the True. Then the angels see the Son, and see in him the reasons of all things. They see in him all that was made, and all things which could have been created. In him, therefore, they see all that is passing on earth, and in heaven. For he contains in the most universal and general way the reasons, the images, the treasures of all things. The angels then see each other and us, as well as all the nature of created things in the perfections of the divine Son. They know God in two ways. First, they see God by contemplating their own perfections, for they were made like unto God. As we see God through the beauties and

perfections of the things of this world, so they in him see their own perfections. Secondly, by seeing God face to face, they see him through the illumination of his grace, and by the light of his glory which shines down upon them, and enlightens their reasonable faculties. This grace and divine reasonable light is necessary for all created minds, in order to directly see God. For the Creator, being the Infinite, is infinitely above and beyond any created mind, and he must give them his own intellectual light, before the created mind can see him, as he is in the supernatural order and above all nature, superior to all created things.

As we rise from the mineral, through the various kingdoms of nature to the God of all things, we find that the higher creatures have all the perfections of the lower, till all at last terminate in God, in whom all perfections are found in a boundless, and in an infinite degree. From this we conclude, that as the human mind sees the reasons of things, and studies the natures of material objects, so the angelic mind sees the natures, reasons, and plans of all creatures below them. Then the "reason why" of all things below them, are known to the angels, as well as to man. These reasons, or natures, or essences of things, are the general plans according to which the different creatures were made. These natures, essences, or plans of creatures, are the eternal Son. But the angels also know and see the singular, and the particular individual things of this world, for they understand by the particular images of things which naturally dwell in their supernal minds.

The angel remembers the past, because it has an intellectual memory like unto man. It also knows the future which happens by the changeless laws of nature: as the coming of the seasons, the movements of the stars, eclipses, etc. The angel can judge an effect from its cause, and tell the cause from the study of the effect. They can do all that more perfectly than we can, because they have a more perfect mind. They also judge of and foresee the future better than man, because they have more learning; as the doctor can give a more prudent judgment regarding sickness than the unlearned. But no angel can foretell what will come to pass, especially what happens by the actions of beings with free-will, because the will is free and no one but God can foresee what creatures with free-will will do. Learned and experienced men can partly read the emotions and thoughts of the human heart. They do so by the study of the actions of man. But the angel, having a higher intelligence, can do that bet-

ter than any man. But as the free-will of creatures is always free and is subject to no one but only to God, the supreme Good and last end towards which it ceaselessly tends, so no creature can perfectly read the heart. That only belongs to God. The angels know many things which belong to the different natural sciences, and the other creatures which God has made. For in creating them, he made each thing according to a certain plan or nature. The angels seeing these natures in the model of all, the divine Son, there they know them and study them.

But in addition to their nature God calls each intellectual creature to a higher state than what their nature gives them. That is, each mind and will of reasonable creatures are to see the True, the Son, and possess the Good, the Holy Spirit, not only as we see them in nature, but also as they are in their own supernatural state. Then each reasonable creature was made to live the supernatural life of God himself. This is the supernatural state, which is infinitely above all nature, and high beyond all created things. Regarding the perfections, and the glories and happiness of this state, the angels and man know only what God has revealed to them. Thus of the Incarnation of Christ, of the means of our salvation, of the glories of our redemption, we know only what has been revealed to us. Of the ceaseless love and infinite goodness of God, how he is ready to receive us back when we return to him from sin, all this we must receive from the teachings of the Church. Of these things the angels know only what God has revealed to them and to man.

The angels having a more powerful mind than man, know all the natural sciences, see the laws of nature, have a full grasp of the phenomena of the various physical sciences, and all that they have in a far more perfect way than the most learned scientist. For having no body, receiving truth not from the crude images of material things, they think by bringing forth intellectual ideas from the images developed in their own spiritual natures. Besides, they approach near to God, and see him face to face, and there, near by him, they read his eternal perfections in their very source and not in creatures. They see the divine Word, the Truth, the Science of the Father, and they drink in those spiritual truths from the very fountain-head itself. The divine Word or the Son of God, being the True, the angels see all things in him, all which their nature demands, and which God is pleased to reveal to them. In seeing the divine nature in a supernatural

way through the Son, they see all the sciences and heavenly truths in the most perfect and universal manner, because God is all and contains all which they can see. But their way of understanding is more perfect than ours. For we see certain general principles and axioms, which appear directly to our mind. Of these we want no proof. But there are few truths of this kind, and to go farther we must compare the subject and predicate and then draw from this the conclusion. But the angel does not do this. But these heavenly spirits see intuitively the conclusion, and contemplate truth directly in its source, that is, in the divine Son. They do not acquire knowledge by long study like man, by dividing and composing and comparing truths or one truth with another, the same as the human mind.

The object of the mind is the truth, as the object of the eye is the visible. But the angel's mind being "the purest and clearest image," of the mind of God, they, seeing the truths in the fountain-head of truth, the Son. In them there is no error, as in the mind of man. For they see truth in itself directly, while we see it only in creatures, and in the work of reasoning and of comparing one truth with another. They have then two kinds of learning, one the knowledge of creatures, both of themselves and of those things below them, which they know by seeing themselves; the other, what they know of God, as revealed to them by the Son, whom they ever contemplate.

The angels have not only a mind but also a free-will. All things tend towards the good. While the minerals and plants strive towards the material good, yet they have no mind and hence they obtain no knowledge which enlightens them, so that they may strive to attain their end. All this is given them by nature. The animal, through its passions, desires the particular material good found in sensible creatures, as the taste likes the meat and the eye visible beauty. But in man and angel there is a free-will, which, enlightened by the mind, ever strives towards the intellectual good proposed as such by the understanding. This faculty which desires the reasonable good, is the will or the reasonable appetite. Hence as all things were made for some good end, some have this end chosen beforehand for them and the tendency towards it was marked out for them by the God of nature, and for that reason they know neither the reason nor the end of their acts. All this was given them by the Creator, and they act according to the constitution, the laws of action, or the nature given them by God. But

there are other creatures, reasonable beings, as man and angel, who not only act, but also know the reason and the motives of their action. They have full command over their reasonable actions. They know, because they have a mind, and they are free because they have a free-will. The mind sees the good in creatures and in God, and the will tends towards that good as seen and pointed out to the will by the mind. Therefore, mind and free-will are always found in the same being, as one follows the other.

The mind and will are the reasonable faculties of the human soul or of the angel. One never acts without the other. They are so closely united, that only by their objects can we distinguish them apart. For in the lower forms of life and in the interior powers and passions of minerals, vegetables and animals, it is easy to distinguish one power from another, not only by their objects, but also by their interior acts. Thus reproduction is entirely different from growth and the hearing from seeing. But as we rise to the reasonable order, the mind and will are so closely united and work so closely together, that one always acts with the other. Thus it is in man and in angel. The reason of this is evident. For, as reasonable creatures more closely by nature resemble God, so they also do so by their undivided simplicity. The mind seeking the true must also point out the good. There is no good but at the same it is true. For if it was not true, it would not be nor could it exist. For the absense of the true is the false, and the false and the bad are not real existing beings. They are only the negation or the absense of the true and good. Both in nature and in objects the mind and will are wonderfully united, and they show the simplicity or oneness of the soul and of all reasonable beings. But when we rise to God, who is the only eternal reasonable Being, there we find that simplicity or oneness in the most perfect manner. For his mind is one with his will, and his Truth is one with his Goodness. He does not think by a faculty or a reasonable power different and distinct from his essence or nature, as do created intellectual beings. He thinks by his own essence and nature. He does not will by a special faculty as do reasonable creatures. He wills by his own divine substance, essence and nature. He does not produce Truth which is by nature different from himself as in created intellectual beings. The Truth he produces in thinking is his Son, who is by nature one with himself. He does not seek any good outside himself, as do the created wills of men and angels. When he

wills, he produces the universal eternal Good, the Holy Spirit, who has one and the same divine nature with himself. Therefore the Persons of the Trinity are one in divine nature, but they are Three Persons. In one way they are One nature, but in another way they are Three Persons.

The object of the will is therefore the good as proposed to it by the mind. But the good which the mind proposes to the angelic will is not found in them, but in God, who is the supreme Good. But God, the Good towards which all reasonable creatures tend, is different from themselves. Hence the will of the angel is not their own substance, but a faculty or a power in them differing from their own essence and nature. But the supreme Good which is the object of the will of God is not any creature but God himself, because he is the supreme eternal Good, which all reasonable appetites, even his own Eternal Will, necessarily seek. Then in God the will is not a faculty in him differing from his own divine substance or essence as it is found in creatures, but it is himself in action seeking his own eternal happiness.

The angels, then, having free-will have also liberty. For the animals and the plants act, not knowing why; for they are directed by law or by instincts which are given them by the author of their nature. But reasonable angels freely act and with full free liberty they seek the good, because their free-will is enlightened by the mind, and they desire and obtain the good as proposed by the mind. But as their mind is more powerful than the human intellect so they have more freedom in their actions. For man acts only after deliberation, because his mind sees the true, not all at once and directly, like the angel, but only after a process of reasoning and of deliberation. In the same way, the angelic will seeks at once the good as proposed to it by the mind. The angel has only two faculties, the mind and will. They have, therefore, no passions but two, the desire of knowledge, and the desire of happiness or of the good. Their will then is not obliged to control animal appetites and passions as in man, because they have none of their animal appetites. They are not tempted and allured by things below, or enticed towards, creatures. They are not attracted by sensible pleasures the same as all men. But they ever tend upwards, towards God. They see the True and ever drink in the Good. In that they are not like man dragged down towards things below him, but they ever tend towards God, who is above them. But they ever tend to rise towards God, who is without and distinct from them, while God does not

tend by his mind towards anything above or beyond himself. For above or outside him there is no other being, neither the true nor the good. For in Him the True is the Son, and the Good is the Holy Ghost, and these Three are of the same substance and nature, and therefore there is but one only true God in three divine Persons.

As in this world we find that the mineral sustains the vegetable, and that the latter gives food to the animal; while all things here below were made for man, so also in heaven there is a regular order, regularity, subordination, obedience, and subjection.

In this world the learned teach the unlearned, and the uneducated. So in heaven the higher angels teach those below them. Those spirits nearest unto God, see him clearer and more directly than those below, and they tell the latter the secrets of his wonderful glories. But because the supreme Good, who is God, attracts alone the will of reasonable creatures, and as the supreme Good he holds it to himself, so no angel can move the will of another, except by enlightening the mind regarding the good, and prevailing on them to do right. The angels, then, are higher and more perfect the more they resemble the Son of God. The better then they bear his image, the higher and more perfect they are. But as in this world the higher creatures contain all the perfections of the lower, so the higher angels have and bear all the qualities and gifts of those spirits who are below them. The superior spirits, then, cannot be taught by the angelic spirits lower than themselves, nor can they learn from them by studying their natures and perfections, as we learn by studying the natures and the phenomena of the physical world below us, because all the beauties of the inferior ones are in those above them.

The inclination of the good person is to divide the good with others. In that way we show our goodness, and in that way God sanctifies us by his holy Spirit, who is his eternal Goodness. Then it comes to pass, that those spirits who are nearest to God, and for that reason are better, more perfect than the others in mind and free-will, for that reason they know and love God better than the angels who are by nature their inferiors. Being good like God, they distribute their truth and goodness down to the other angels, who are below them. They give them as much as these inferior spirits can receive, of truth and goodness, so that they always remain in the same state in which they were at first created, and received into glory.

In order to do all this, they must speak to each other, and use spoken language. But not having a body like man, they do not speak in vocal words, as we do one to another, nor do they write to each other. For to do all that requires corporal organs and material ink and paper, while they are entirely above and independent of any material organs or things. To find out how they talk to each other, we must examine the operations of our own reasonable part, the mind and will. When we think, we speak to ourselves and we talk to ourselves in the silence of our own soul. The will commands the mind, and urges on the memory to bring forth what we have forgotten. As man talks to himself in thinking, so the angels speak to each other, not by vocal organs, but by their pure spiritual minds. Thus in the silence of heaven, by acts of their minds and wills they communicate their thoughts to one another, and speak by mental thoughts or by mental words.

But they are not separated either from each other, or from God by local distances, for distance belongs to material things; for all minerals and corporal objects are in place and thus a distance separates them. But pure spirits, as God and angels, are not in any place, but in a state of greater or less perfection, inasmuch as they are more or less like unto God, to whose resemblance and image they were made.

As when they speak their will orders the information to one, and not to any others, thus they may speak either to one, to many, or to all at the same time, to themselves or to God.

Conversation then takes place among the angels, entirely by an interior illumination of the mind. Truth is the illumination of their minds and this angelic conversation takes its root in God whose truth they receive and send down, the higher to the lower. Thus God enlightens the mind of the one who speaks, and the one who receives this new revelation of the perfections of the Almighty tells it to others. The angels, then, are higher or lower when compared to the amount of science and the truths of God's wonders which they know. The higher spirits, then, teach the lower angels all the truths of the eternal and exhaustless perfections they see in God. The higher, heavenly spirits speak directly, and, as it were, face to face with the Son of God, of whom they are the images. He is their teacher, because their created minds are ever in union with the uncreated mind of God, from which proceeds the Son eternal. Their wills are united with the Almighty will of God from

which proceeds the Holy Spirit. Therefore, by the Son their minds are enlightened by Truth, and by the Holy Spirit their wills are strengthened by the Good. Thus they receive from Almighty Truth, the Son, all truth their natures can receive, and from the Eternal Good, all they desire and all happiness they can possess and enjoy. Those nearer and more like unto God transmit these supernatural gifts down through the various ranks of angels, to the lowest as teachers, as givers and as rulers on this earth do to their inferiors.

From the foregoing the reader will understand that the angels are not all equal, but that some are higher than others. But considering God as separate from all creatures, angels and men compared to him form only one category of created beings. For the Creator being infinite, the distance which separates him from all creatures is infinite. But man being the lowest reasonable creature, he has to obtain his pure spiritual truths from the images of material things, while angels see truth in God. It follows that man differs from any angel, as the latter is a pure spirit, and in power and in perfection far above the greatest man. Thus mankind forms one category of reasonable beings, while angels form another. It also follows that no man can ever become an angel. Because the human soul has not only mind and free-will like the angel, but also sensibility, that is, he has a series of faculties, which animates and gives life to the body. This no angel has. Therefore, no man can become an angel.

Angels differ from each other, therefore, according to the amount of knowledge they can receive. The superior spirits receive that knowledge and learning directly from the Son—God himself. They see the causes and reasons of all things directly in the divine Son, the Plan, the Reason, and Exampler of all. He is the Word, the Truth, the Image, and the Idea of the divine mind. The second rank of angels see truth in its universal causes or principles, while the members of the third army of angels see truth in its special effects upon creatures. The angels in heaven, therefore, are divided according to their science and goodness, into three great orders. The first considers God as the end of all beings, especially of intellectual and reasonable creatures; the second study the means by which that end is obtained; while the third contemplates the works of the Creator in creation. These three things, the end, the means to attain the end, and the work accomplished, these three principles rule the acts of all

reasonable creatures. The first order of angels which are nearest to God are again divided also into three hierarchies: the Seraphim, the Cherubim and the Thrones. The Seraphim are next to God. The word signifies noble, for by learning they are the noblest spirits; or it means burning, for they brightly shine with the light of knowledge they receive from the divine Son, and they burn with the charity they obtain from the Holy Spirit. The Cherubim comes next. The word signifies grasped or held fast, for they ever and unceasingly held their mind and will fast unto God. The Thrones are below them. The word means the seat of a king, judge or high-priest, for they tell of Jesus Christ the Almighty King, the just Judge and eternal High-priest of all Creation.

The angelic spirits who dwell in the medium, as it were, between God and lower creatures, these again divide into Dominations, Virtues, and Powers. They signify God's government over the whole universe of Creation. The Dominations or Lords, signify the almighty rule of the Creator, which he exercises over his creation. The Virtues tell of his mighty power in mastering and in ruling all things. But the Powers, as the name itself signifies, is the power, might or strength of God, which, like his other attributes, is also immeasurable and infinite.

The third order relates to creatures of this world. They are divided into the three hierarchies of Principalities, Archangels and Angels. The Princes and Commanders are those who command as in an army. The Archangels are the superior angels, and they announce to men important and superior things relating to salvation, while the angels form the lowest rank of heavenly spirits. The word angel, in the ancient Hebrew, signifies an agent or messenger, because they have been mostly sent from heaven to earth.

Thus the spirit hosts of heaven are divided into three orders, with three hierarchies in each order, making nine choirs, who minister before the throne of God. Their names are found in Holy Writ.

The spirits who live in Heaven, then form, as it were, a vast army, with king, generals, colonels, captains and privates. The king is the Son of God, the King of kings, and the Lord of lords. By truth and love God is known and loved by creatures, for the Son is Truth and the Holy Spirit is Love. Coming down an infinite and immeasurable distance we arrive at the highest seraph, ever shining with the intellectual light of the Son, and burning with the love of the Holy Spirit.

One of the lowest of the seraphim, as a general, commands the vast army of the Cherubim. One of the lowest of these, as an inferior general, directs the hosts of the Thrones. A commander from the ranks of the Thrones rules the Dominations, while one of these presides over the Virtues. Again, a bright spirit belonging to the hierarchy of the Virtues, conveys the orders of God to the Powers. A Power is at the head of the Principalites, and one from among the latter heads the Archangels; an Archangel is the captain of the Angels. Thus heaven is filled with an innumerable host of pure spirits created, commanded and drilled as a vast army with officers in full control, while at the head of all stands the Son of God to whose image and likeness they were made. By nature, by learning and by grace, they are all unequal. Yet all sing the glories and the perfections of that God, whom they worship in spirit, in truth and in delight.

When all things were brought before Adam he called each creature by its name, and the name he gave each thing of this world signified its peculiar nature and its use. The remains of that are still found in the Bible, for the old Hebrew names signify some quality or property of the thing named. But most of the modern languages have by time and change lost that original beauty, while faint vestiges of it still are found in the ancient tongues. We find, therefore, as a result of this old custom, that the names of the various hierarchies of the angelic spirits signify some predominant power, perfection or property, which they have in common. They were created to do the will of God, among lower creatures. They all manifest and show forth the wonders of the Godhead. They all think and by that from their own spiritual substance, they generate an idea, which always remains within their minds. That is an image of the Son, the generated Idea of the Father. They bring forth acts of love, in loving God, and by that they form so many images of the Father, and the Son, by love bringing forth the Holy Spirit. The idea or truth and the love in the angelic substance remain forever within them and they are one with their nature and do not separate from their essence, thus representing the unity of God. Therefore, they generate truth and love. But in God Truth is the Son, and love the Holy Ghost. Thus they generate the images of the two Persons of the Trinity, the same as man does in thinking and in loving.

The Seraphim, Cherubim and Thrones, as their name in Hebrew signifies, ever burn with that eternal light and fire which comes from God. That bright light is truth, that burning

fire is love. Being nearest to God, they in a more perfect manner partake in and live his supernatural life; as fire ever rises upward they always tend towards God. As it heats so these supreme spirits fill other spirits below them with the love of the Creator. As fire enlightens, so these illuminate the spirits below them in the knowledge of the glories of God. They therefore have a perfect vision of God, a fulness of the light of glory, a knowledge of the beauty of all creation and all these they teach to those below them.

The Dominations, Virtues and Powers were created to show forth God's infinite government over his creatures and to carry out his laws. For it belongs to the commander only to command, while others under him do the work and carry out his orders; and thus it is with God. He works by secondary causes, creatures which he made.

The Principalities, Archangels and Angels direct and take care of the important matters of the human race. Thus an archangel guarded the children of Israel in the desert. Angelic spirits rescued them from their enemies and fought their battles for them, and gave the law to Moses on the Mount. An archangel announced to Mary the conception of Christ. As in nature so in heaven no sudden gulf divides these various angelic ranks and hierarchies of creatures. As the vegetable insensibly rises up into the animal kingdom, so these celestial spirits gradually rise one above the other, till you come at last to the highest and the noblest Seraph; then you stand on the infinite abyss which separates God from his highest creations.

The three lowest hierarchies of Principalities, Archangels and of Angels, being occupied with the lower works of God, these preside over his material and visible creation. Thus the Principalities preside over nations; the Archangels announced the chief truths of revelations, while there is an angel guardian for each member of the human family. Sometimes the names of these heavenly spirits have been revealed to mankind. We know the names of the three archangels who announced the chief truths of the Christian religion. The archangel Michael, who drove the rebel Lucifer with all his disobedient hosts into hell; his name means "who is like God; " Raphael signifies "the healing power of God," because he healed Tobias; while Gabriel bears that name in Hebrew signifying "God is mighty," for he announced the Incarnation of Christ whose power is especially shown by Christ the Son delivering us from the power of hell.

These nine orders and hierarchies composing the

heavenly court around God's throne, come from their nature because they were created each for a function and a duty which God wants of them. But besides this we must add certain graces, free gifts of God, which added to their nature make them still more perfect, and still more complete. By nature and by grace the angels are unequal. By nature each one is a species in itself, and by grace each one of them is elevated to a higher knowledge and love of God. That grace comes from Christ. For he is the Saviour, not only of mankind, but also of the angels. In the human race men are equal and still unequal. As members of the one human race they form but one species of reasonable creatures, the lowest beings with mind and will. In this they all are equal. But, by nature some have one talent, some another. Some have great abilities for learning, some for working, others for the various professions and states in society. They show this by their aptitude and inclinations. This inclination and ability was given them by the Creator, and it is called a vocation. Till a man is in his right vocation he can not be successful or happy. But any man can, by being good, obtain great graces or merit a higher place in heaven than the one who does not correspond to that supernatural grace given him by his Redeemer, Christ. By doing good, and living a Christian life, by imitating our divine model and master, the Son of God, who lived on earth as man, we merit great graces and great rewards in heaven. As a reward for our good lives, we will be promoted to various places in heaven. These places were left vacant by the angels who rebelled against God. We were created to fill these heavenly seats again. As heavenly spirits of the various hierarchies rebelled and were cast out, so we will be promoted to the different hierarchies in proportion to our good works and according to our godlike lives. In heaven, then, men are equal to the angels, not by nature but by the grace of Christ.

In human affairs, the universal power always rules the particular creature or being. Thus man is individualized by his material body, and he is ruled by the general laws of the Church and of the government under which he lives. Reason is his universal faculty, and it should rule all his acts as a man. The angels are universal, reasonable living spiritual forces, substances or powers. They are entirely independent of, and free from material things. Material things are always single, particular, subject to time place, and to material changes. It is natural, then, to conclude that as man rules this world by the force of his spirit-

ual mind and free-will, so the angels, who are by nature superior to man, also rule material things. Perhaps they cause mysterious acts of matter, such as gravitation, attraction, repulsion, electricity, etc., which are insurmountable to man. Those natural, invisible and material forces are certainly the greatest mysteries we find in all our studies and the truths of religion are much easier to understand than many phenomena of nature. Many writers say that all these mysteries of nature are caused by spirits. In that case there is no mystery about these hidden causes in nature.

The more universal and powerful the angel is, the more it resembles the real and eternal Universal who is God the Infinite.

Aristotle, led alone by the light of reason, for he was a pagan, taught that all material things were ruled by spirits. Plato taught that the species or appearances of material things existed alone and separate from matter, while St. Augustine contended that an angel presided over each material thing. It is certain that even the lowest angel, because it is nearer like the Creator, has a more perfect power and a more universal nature than any species of plants, animal or even than mankind. Therefore St. Thomas thinks that each species of minerals, plants, and animals have a special angel presiding over them, not from the nature of the angel or of their species, but because God has appointed it so.

The angels, being creatures of great power, they can exert that power in nature and in this world which was created much below them. But as they are good, they do nothing wrong in nature. They only carry out or aid nature in its physical acts and various phenomena. But they cannot change the laws of nature, by which God rules the universe; nor can they do anything contrary to the regular order of things, for that would be a miracle, and only God can perform miracles, or change the laws he has ordained for the government of his creation.

The angels speak to each other by showing truth. But the human mind being inferior to the angelic mind, we cannot see truth directly in itself, like the angel, for we must turn to the images of the imagination, and from them abstract truth and make it universal. So it follows that no angel can speak directly to us, as they do to each other. But they can excite images in our imagination, and teach man by sensible signs and material images of things. Thus in the Bible we read that angels often spoke with man.

But they never deceive us. The bad angels or demons sometimes do that. But no created spirit can directly move the free-will, for that is always tending towards the good, God. Yet they can indirectly move us to do good, by moving and enlightening the mind, so as to see the right and to choose it in place of the wrong.

We have said that angels have ministered unto man. A minister is like an intellectual or reasonable instrument. Thus, as we work with tools and instruments, and use these according to our wishes, thus God uses creatures as his instruments. Christ uses his ministers as his agents in the salvation of mankind. He uses the sacraments as means of salvation. It is reasonable, then, for God to send his angels as his ministers into this world to do his works, for he made them like himself and they do his will. Now, the Father generates the Son, and he sent him into this world as his great Minister and eternal High-priest to save the world. The Holy Ghost as the Good proceeds from the Father and from the Son. Therefore, both Father and Son sent him into this world to sanctify mankind. The angels were made to the image and likeness of the Son and of the Holy Spirit. As the two Persons of the Holy Trinity were sent into this world, so also the angels come at the bidding of God to do his work, and to take charge of the lower creatures of his created world. Some writers think that certain celebrated spirits from each hierarchy were sent into this world, while others suppose that only the inferior spirits, or those belonging to the hierarchy of angels come to man, and this appears to be the most probable opinion.

In the order of divine providence, the higher directs the lower. The reason and free-will of God or of man regulates the material world, and our acts are directed by high and universal principles. It is reasonable then to conclude, that the angels who are above us, were sent by God to take charge of human affairs. This the Christian religion tells us. For if God takes such care of the material world, which is so inferior compared to us, how much more will he guard us, who are his living reasonable images by that soul of ours which will never die? For if God so loved the world as to send his only begotten Son into the world so as to die that we might live, how much more reasonable it is to say that he also sends these heavenly spirits who were created remarkable images of that same divine Son? For God the Son is the Universal, and he came to save the whole universal race, not a part. But each angel is only

partly, but not infinitely universal, and for that reason an angel has charge, or is the particular guardian of the immortal soul of each particular man, which it guards during this life.

It appears that only the members of the lowest three hierarchies guard man and look after human affairs. Principalities are sent to take care of nations and of governments. They rule important things in human affairs. Archangels look after cities, towns, assemblies of men, kings, rulers, churches. God sends an archangel to be the guardian of each public ruler and important personage. But at the moment of birth, an angel is appointed to be the angel guardian of each person born into this world. They are the special guides of men through this treacherous world. But when we get to heaven, then we will live forever in the society of the angels, and we will not then need any angel guardian. Some writers say that only the Christians have angel guardians, and that they are given at our baptism. Others think that there is an angel for each person appointed as soon as they are born. This angel never entirely leaves the person or place whom he has been deputed to guard. But he may subtract a part of his shielding power, if that person commits a grievous sin, or if the nation or city falls away from God. Thus we read that the angel guardian deserted Jerusalem and Babylon, when they fell away from God. As the physician does not always feel sorrow for every pain or suffering of his patient, so our angel guardian does not feel pain and sorrow for our miseries or for our sins, because his mind and will are fixed on God, and he is in heaven, where all is happiness, and sorrow is contrary to the joys of heaven. But of that abode of bliss we will speak in the following chapter.

CHAPTER XXVI.

Heaven.

All men desire happiness. That is the strongest sentiment which moves our nature, because the desire of happiness is written in the very essence of our being. For God is infinitely happy, and in making creatures to his own image and likeness, he made them happy like himself. Creatures below man, not having mind and will, possessing only sensible powers, these have only sensible pleasure. But reasonable man enjoys not only sensible enjoyments, but also intellectual pleasure. As reason and intellect in nature, and object is far above the sensible, so intellectual joy is a higher and a greater pleasure than anything which the senses, or the sensual part of man can enjoy. Therefore, the pleasures which man should seek are those of reason, of the mind and free-will, rather than the pleasures of the senses, which form the lower and the animal part of man. When a man turns to the things which are below him, and there seeks pleasure, he lowers himself. But when he seeks the things of heaven, which are above him, he elevates and enobles himself. Thus we always see that the one who is entirely given over to any sensible pleasures, becomes a brute, and soon he falls lower than the beast.

Man has not entire command over the mineral, vegetable, and animal powers within him. They are more or less guided by the laws which rule nature. But man has control of his mind and of his will. In these he acts as a man, as a reasonable being. The end of the acts of all the rest of nature was given them by the God of nature, for they have no reason to guide them, and therefore, the eternal Reason of God, by the laws of science, directs all nature, below man in its acts, and lays down the end of its acts, movements, and all its natural phenomena. But man and angel being reasonable beings like unto God himself, therefore, these always propose the end of their reasonable acts. The end then, is the object of our acts, and it is called the motive or the reason why we do so, or do not. The motive, then,

causes us to act. That is why it is called the motive, because it moves us to act. If the motive be good, it is a good act; but if our motives are bad, the act is bad and is a sin. The object of the will, being the good and the will directing all the other powers of man, it follows that in all reasonable acts we seek the good. The possession of the good gives rise to pleasure and happiness, and therefore, in all his acts, man seeks his own happiness. The general and universal motive then of all our acts is happiness. That is the nature of reasonable beings. Every free act of man and of angel is to obtain a greater happiness. For God is so good, that he could not create a creature to suffer in misery, for suffering comes not from God, but from creatures; and all sorrow, and all misery among intellectual creatures, comes not from God but from the abuse of reason, which is sin. Every creature then was made for an end, and the end of all reasonable creatures is to be happy. The higher and the more near like unto God is the creature, the happier, and more joyous it should be. Whence animals do not laugh. Man alone enjoys intellectual pleasures, which are as much above sensual pleasures, as reason is superior to sense. The angels are happier than man is on this earth, because they are nearer like to God, who is eternally happy in the society of his three Persons.

Let us stop for a moment and look into our own hearts, and study our own souls in the silence of deep thought Inward in the study of ourselves, we find there something, which is, we might say, almost infinite. The human heart is a world in itself. There we find implanted by nature the desire of something higher, nobler, better, pleasanter. It is a sentiment in us entirely predominating. It is the desire of our greater happiness.

Some men place their happiness in riches. That is wrong. For riches, whether natural, as food, clothes, houses, etc., or artificial riches, as money, bonds stocks, mortgages, wages, etc., are for men and not men for them. For that reason the one who makes them his end, reverses the order of nature, and therefore he will be disappointed, because he has the instincts of the miser. For the desire of happiness in the human heart is boundless and, we might almost say, infinite, and the finite things of this world cannot satisfy that, our infinite craving. The happiness of man cannot be found in honor, for this is rather in the one who gives the honor rather than in him who receives it, because of his intrinsic worth, or because others rightly or wrongly think him worthy of that honor. It follows also that our happi-

ness does not consist in the praises of men, because they are often deceived regarding our good or bad qualities and to the greatest man they cried "crucify him." Neither are we satisfied with power, for we may abuse it, and the greatest kings and rulers, like others, have their moments of sorrow; they too must taste the bitterness of this fallen human nature. Experience tells us that the last end of man and his happiness is not found in the body. For the body is for the soul, not the soul for the body. The soul uses the body as its instrument in all the operations of vegetable and of animal life, and the perfection of any creature is not found below, but above him. Human happiness, then, cannot be found in the body, which is below the soul, nor in the soul, which is a creature. We must look above for our perfections. None but fools, therefore, seek happiness in the pleasure of the senses. For soon our senses are satisfied, and when we exercise our senses beyond reasonable bounds for pleasure, these sensible pleasures only give rise to disgust and to sorrow. The animal pleasures, then, in us are easily satiated and they, therefore, cannot be the good towards which our whole nature ceaselessly tends. That happiness towards which we ever strive, is not within us, for we are finite creatures. It must be something without and superior to us. It is not anything created, for the desire of the heart is for something infinitely above and beyond all creatures. It is true, the good and upright heart is happy in itself. The man who is honest and who does good to his neighbor is happier than the godless and the miser, because by this, he resembles the Creator, who is infinitely good and who is ever showering down his blessings upon us all.

The will, ever desiring the good in general, and the good things of this world being single, individual and particular things, which are good because they resemble the good Lord, and the will, never finding rest and perfect and universal happiness in them, it follows that the happiness of man cannot be found in any created thing. For perfect happiness and everlasting joy, therefore, we must look beyond and above this visible world.

What is the happiness towards which by our very nature we ceaselessly tend and ever strive to obtain? Every creature finds pleasure in acting, in the operations of its faculties. Thus, the young of all earthly creatures play. That is instinct, telling them to develop their physical constitution. The animal and man find pleasure in exercising their various powers. The natural appetites give us pleasures, so that by

the attractions of these sensible joys, we may be allured and enticed to do these things which are for the preservation of the individual or of the race. But the highest and purest happiness of reasonable creatures is found in the acts of reason. The highest happiness, then, of man must be looked for in the exercise of his highest, or in the reasonable faculties of mind and will.

The object of the mind is the true, the object of the will is the good. The True in God is the Son, and the Good is the Holy Spirit. By his mind God brings forth the eternal True, and from his will proceeds the everlasting Good. The human mind sees the truth of creatures here below, and the will seeks the good in the things around us. But the true and the good in creatures are but so many weak images of the Son and of the Holy Spirit. They cannot satisfy the cravings of our reason. We must look higher. In heaven the mind sees the Son and in seeing him it sees all truth. There in heaven the will possesses the Holy Ghost and in that it has all good. There, these two reasonable faculties will be satisfied, satiated, transported into ceaseless ecstasies and delights. To forever contemplate the divine Son, to possess the Holy Ghost, that is heaven. In heaven the mind which in this world ever seeks the true will see the original and eternal True, the Son, who is the True in its original source. There the will, which ever desires the good, will then possess the satiating, original and eternal Good, in its very origin. In that abode of joy the mind and will will find unceasing eternal rest.

We know how the mind desires truth, how all scientific men are delighted at any new discovery, how they spend days in the study of any new phenomena, till when they understand it and they proclaim it to the world. We also know how we all ceaselessly grope after our ease, after the good which we find in creatures, and how our nature impressively demands joy, happiness and pleasure. But let us stop for a moment and think. What must be the unspeakable happiness of seeing God in all his Beauty, Truth, and Goodness, as he is. What joy it must be to see God face to face, to contemplate forever that eternal Being, to shine with his glory, to pass from one perfection to another, to be free from death, anxiety, sickness, sorrow, to have no regret for the past, no trouble for the future, to know that now misery and sorrow have passed to return no more! Can any human mind now realize the glories and the happiness of heaven?

Let us explain it better. We know a thing when we see it, either by its effects or in itself. But as long as we see only the effects, we desire to see the thing or cause directly in itself. This world is an effect, of which God is the cause. Now in this world we see God only through his works in the wonders of this world, which he has made. But we are not satisfied till we see him, the cause of all created things. The senses see only the appearances and modes of matter, while the mind penetrates in, and sees the essence of all things. The mind then was made to see the very essences, natures and causes of things and to reach their reasons. In heaven, then, the mind will see the very essence of God, and ever live with him the primeval Reason, Nature and Cause of all. The will seeks the good in creatures, but it is not satisfied with the created finite good of this world. But in heaven, the will possesses not the good in the imperfect creatures, but the eternal Good who is God. In God then the mind and will forever repose and rest satisfied. The possession and enjoyment of the good, gives rise to pleasure or happiness. To see truth is a pleasure, and every good inasmuch as it exists is true. Therefore, both the mind and will are ever active in heaven, seeing and possessing God. In heaven, therefore, each intellectual creature sees, possesses, enjoys, and rests in God. In this world, then, we begin an imperfect spiritual life, which is completed only in heaven. For, in order to get to heaven, we must have knowledge by which to direct our steps in the right direction. That knowledge we cannot get ourselves, but from the Church. For God is so great, so incomprehensible in his ways, and the human mind so weak, and the duties of life take up so much of our time, that it is impossible for each man, woman, and child alone, to know the things of God. In this life we know them but dimly and in a vague manner. But the Church being the mystic body of Christ, it carefully guards the deposit of faith, or the constitution, which he left, the doctrines which he preached. And the Holy Ghost, the Sanctifier and the Comforter, is in the Church as the soul is in the body of man, and through the Church he teaches mankind. Then we must listen, not to our own weak reason, which is fallible, but to the Church which never fails. Then from the Church, we must get the truth which will enlighten our minds in heavenly things. Not only that but the human will must be upright and honest and well-disposed to do right, to obey all the laws of God and of man. We must be humble in order to receive the

graces which God gives the Christian. We must be free from sin and do all he has commanded us through the Church's commands. Then there is peace in the soul and by faith we see now those things of God which are dim now, but which will be plain when we get to heaven.

As the mind and will do not use any organ of the body in producing the acts of reason, so the human soul in heaven sees God and possesses the Truth and the Good without the body. Therefore, the soul in heaven separated from the body and before the last resurrection is perfectly happy. When the body is united to the soul after the resurrection, this material and animal body will not be then as it is now. For now it drags us down. It is now filled with all the imperfections of matter. But then it will be a spiritual body, having all the qualities of a spirit, like unto the glorified body of Christ, immortal, spiritual, heavenly, and therefore it will be like the soul and be united to it to die no more. That is the happiness of the blessed in heaven. In that, our last home, no material food, clothing, or external things will be wanted to aid our happiness. For all these are wanted now for our present material and animal life. But in heaven we will possess God; and as all in him is infinite so there we will want nothing. For in possessing God we will have all. We will there see and meet again our relations, friends, and acquaintance. We all will live in the society of the angels, and of the saints. But we will not want them for our happiness. For we will have God, and is he not enough?

We have seen, and experience tells us that, the mind ever seeks the true and the will desires the good. But the true in creatures is like themselves, single, one, bounded; while the good in them is also passing, changing, unsatisfactory. The mind made to seek the universal true, finds it not in anything created, while the will ever looking after the supreme good, cannot find it here below. The universal Truth and the supreme Good is God, the only real Universal and the only Supreme. To go to God, then, and to rest in him, that is heaven, the last end of man. To that every instinct of our nature tends, because for that we were made and our very nature demands it, our final joy and happiness. To go to God then is the end of man. But human nature by itself cannot rise to such a height. For infinite is the distance which separates the noblest angel or highest creature from the Creator. God then takes reasonable creatures to himself, not that they of themselves are worthy of it, but he does so as a free act of his own infinite goodness. He

prepares us for himself by giving us grace in this life, flowing in countless streams from the fountain of the crucified Christ. By acting according to the inspirations of this grace, we merit heaven. But some merit more than others, and therefore they make themselves worthy of greater or less rewards. Then in heaven all possess God, but they do not all partake in his happiness in the same measure, but according as they prepared themselves here below by goodness and by virtue. In heaven then there are many "mansions" or degrees of happiness, given to each as he made himself worthy by a well-spent life. The goods of this life, then, are changing, passing away, and they never satisfy the soul. How foolish, then, it is for us to place our hope in creatures. What fools we mortals are to work for this world and not to see and lay up our treasures in heaven where the rewards will be God himself, who will surely recompense us in justice and according to our merits and our good works.

The angels and the blessed, who see God face to face, and who everlastingly contemplate his infinite perfections and partake in his own happiness, they can never change for the worst nor can they cease from being united with him. We can at any time loose the happiness we find in creatures, because they are ever changing and they do not fill the soul which is infinite in its desires for pleasure. But in heaven the mind will be filled with all truth which it can contain, and the will then will possess all the happiness it can receive. There, in that abode of bliss the mind sees all truth in the Son. In it, therefore, all reasonable creatures are, as it were, eclipsed in the bright rays of reason and of truth shining down from him, their original Sun of justice. To the mind, then, enlightened, all creatures appear as they really are, as nothing when compared to their Creator. The soul, thus seeing God, is so enlightened by him with truth that it is never deceived. Nothing false is in the mind which dwells in heaven, for God who enlightens it is the Son, the eternal truth, and he cannot deceive. Therefore, the mind of the creature in heaven sees things as they are, and then no reasonable creature desires to, or will ever turn away from the Son, the uncreated Truth. Besides, the will, which by its very nature seeks the good, the possession of which is happiness, finds all goodness in God, who is the eternal Good. In him it possesses, inasmuch as it is capable of all goodness, all happiness, all joy. Having at last arrived at the last place or term of its existence, where it is perfectly satisfied, and supremely satiated, the will in

heaven desires no more. It rests satisfied. It wants for nothing.

From this it appears plain to the reader that the happy spirits in heaven cannot fall away from God or lose heaven. Rather they do not want to fall away, no more than we want to deny the multiplication table, no more than we want to say that virtue is bad and vice good. They are perfectly free, yet they never sin. Therefore those reasonable creatures who once see God face to face never turn aside from him and always live in heaven.

God in every way is the Infinite. No creature can be infinite in every respect. For in that case it would be like unto God. Heaven is the partaking of the infinite happiness of God. As every creature is finite so no creature can lead man to God who is infinitely above all creatures; for no creature can form a ladder leading up to God, because when we would ascend to the highest creatures and stand on the summit of the most perfect angelic heights we would still be among finite creatures and an infinite gulf, or an immeasurable, impassible abyss would still separate us from the Infinite. Therefore, no man can obtain heaven by his own unaided efforts. God must bend down and lift him up to his own incomprehensible height. Therefore, God alone saves reasonable creatures. They cannot save themselves without the Saviour. That salvation is given us by grace. Grace is God existing in us. We do not raise ourselves up to God. He comes down to us. For he bowed the heavens and came down to rescue the sons of men, and he alone saves them, for he loves them with an infinite love.

What is love? The poets sing of it, the learned write of it. Love moves the world. Intellectual love is higher, purer than any sensual love. When we love others because they are useful to us, that is a selfish love. When we love others, not because of any benefit we derive from them, but because of themselves, and because we want to do good to them, that is the love of friendship. If they return the same kind of love to us, we are friends. If we love others because we desire to save them unto immortal life with God, that is the love of charity. Charity then, is the highest and most pure kind of love. God loves us with the love of charity. For God is love, and in love and in everlasting charity he came and died for us.

But why does God love us? The Father looks upon himself and always and ever brings forth the Son, the Image of his own divine nature. The Father loves the Son because he is perfect, and the Son loves the Father because he is

perfect, and this Love coming forth from the Father and from the Son, is One with them—for they are one in nature. This Love is the Holy Spirit. The Perfect then in God, through his mind, inspires the Love and produces the Third Person of the Trinity. The motive then of love, both in God and in his reasonable creatures, is the perfect. Then we love what is perfect. Thus the more beautiful the flower, the trees, the landscape, the animal, the human being, the more we love them. Thus it is throughout all nature. The more perfect or more beautiful the lady, the more virtuous the woman, the more love she will receive from him who desires to make her his wife. The more perfect, strong, wise, learned, etc., the man, the more his wife will admire and love him. Therefore, we see that the perfections of God and of creatures inspire our love. But the perfections of creatures are but imperfect images of the infinite perfections of God. God is infinitely perfect, and therefore we should love him alone, above all things. No love of creatures should for a moment turn us aside from loving God the only Perfect.

All creatures resemble God. They are each and all made to the image and likeness of the divine Son. But of all creatures man and angel more closely resemble God than any thing below them. Man was made to the image and likeness of God. His soul is an immortal, and reasonable spirit, in that it is like unto the Son of God. The Father loves the Son, because he is his Image, and he also loves us because we are each made to the image of his only begotten Son. In us, his grace raises us up to his own divine nature, and thus we live his life. For that reason God loves us, because by nature, and by grace we are his images. By nature and by grace we bear his nature, the likeness of his own eternal essence. For that reason, the more we resemble his divine Son, the more he loves us, because of our resemblance to himself. In loving us weak, feeble men, God loves us because of his own eternal Son. Through Love, that is by the Holy Spirit, the Son came into this world and took our nature. He united himself in us to all minerals, plants, animals, angels. He first made to his image and then he raised all natures, species, sciences, learning, perfections of his creation back to himself, this eternal Image, Model, Plan, and Perfection in the body and soul of man, when he became Incarnate in the breast of his mother. Here we begin to get a glimpse of the wonders of God in saving man, his earthly reasonable creature.

Now the soul which in this life loves God, will receive the love of God in return. For God is love. To love is his very being. For the Holy Ghost is the mutual love of Father and of Son. He is equally God. Therefore God is love. The moment then, that any intellectual creature turns to God, and loves him above all, that instant God must love him and turn to him and save him, because to love all, is the very nature of God. The one who loves another wants to be with that one. Thus when man and woman love each other, they are never so happy as when together, and soon they will unite in wedlock. By love they will bring forth another human being like themselves. In that they are an image of the August Family of heaven, the Trinity.

For man, woman and child are one in nature, and three in personality. They have one human nature in common, but they are three individuals. We see this more perfectly shown in the first family established by God. Adam came from no one. Eve came from him, and their child from both. All had one human nature in common, but each was a distinct and separate individual of that one human nature they possessed in common. Was not this a remarkable image of the Trinity, the True God, and the unity of the three Persons in God ?

Love is a remarkable instinct of the Creator, for the preservation of the race, either of animal or of man. For when man and woman love each other, they know not why. It is a grace of nature, a blind instinct given them, so that they may unite in lawful wedlock, and thus reproduce their race. Without that love the whole human race would soon disappear from the earth. But God, who stretches from end to end of the universe, has disposed all things so kindly and so correctly that we are directed by his supreme Wisdom and animated by his Love.

When we love a thing we want it. We are never so happy as when in the company of those we love. Love then always tends to unite. The soul which loves God, is beloved of God, and the product of that love is union between God and that creature. When that union between the Creator and the creature is perfect, complete, and endless, that is heaven. But that cannot take place in this life, because here we can see God only dimly in creatures, his images, and by faith, which is the way we see him as he is in his own supernatural state which is above nature. We look forward to the rewards he has prepared for us. Thus here in this life by faith, hope, and charity, we begin to live a heavenly life,

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which will be complete only when we see God face to face as he is in his own incomprehensible essence. In baptism he implants in our souls that faith, hope, and charity, which are the three Christian virtues which are far above all the natural forces of man's faculties and abilities. Faith is the belief of the truths of God, things which we see not now directly but which are founded on the truthfulness of God, who cannot deceive. We believe these things revealed, because the infallible Church, animated by the Holy Spirit, proposes these things to the intelligence of all men. He that believeth not these things insults God, rejects his salvation, and he shall never taste the joys of heaven. Hope is the expectation of the rewards of heaven awaiting the good on earth. It is founded on faith or the infallible word of God, because he has promised to reward the good and to punish the wicked. God rewards the virtuous and the good, because he is infinitely good towards his creatures. Charity is the love of God above all, who is the only infinitely Perfect. We love God above all other things, because the perfect inspires love, and God is perfect above all, and therefore most lovable above all created things. The pagan, the infidel and the unbeliever do not see or believe in the Christian religion, because they have not faith which is like another eye of the soul, which sees heavenly truths, which are above all natural truths and far beyond the natural faculties of man. They do not hope for the rewards of heaven, for hope is founded on faith and they have no faith. They do not love God above all, but rather they love creatures. For not having faith they dimly know God only through the wonders of nature, as the Creator of nature. As for regarding his wonders as they exist in himself and above nature and in his own supernatural mode of existence and of rewarding reasonable creatures, of all these they know nothing. They have natural faith, hope and love, like the animal sentiments, but nature cannot elevate us to the height of the supernatural God, and, therefore, unless the supernatural is implanted in us, we cannot get to heaven, as then we rely on our own unaided efforts. By baptism we are born of Christ; by confirmation that spiritual life implanted in our souls by baptism is made strong and perfect. Communion feeds that life. Penance restores it when lost by sin. Extreme Unction wipes out the stains and remains of sin. Holy Orders raises us up to become the agents and ministers of Christ and to represent him in administering the sacraments and in preaching his Gospel. Marriage gives grace

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and love to husband and wife for themselves and for their children.

Love, therefore, unites the lovers. The reasonable creature who loves God is united with him. The soul and body are united in one nature and one person in each man. The body lives the live of the soul. The latter takes the dead materials furnished by the food and incorporating them into the system, gives them its own life. In that the soul raises the crude materials of the mineral kingdom up to its own life and thus elevate them far beyond all the power of the mineral. In this life grace is the indwelling of God in the soul. Man is a temple, the grandest ever built, and into that the Holy Spirit comes and takes up his abode. But in heaven God continues that indwelling, that living in his reasonable creature. For the soul united to God by charity, in this life at death, in heaven finds that union far more perfect and closer than in this life. The God, who lived in the soul by his grace or Holy Spirit lives in a still more perfect way when that soul is freed from, and separated from this imperfect crude material body of clay. Thus after death, God raises the souls of the good up to himself. He gives them to live his own supernatural life. He communicates to them his own infinite Truth and his own immeasurable Goodness. In that case the soul lives the life of God, and partakes of his own infinite happiness. That is heaven. It is a partnership with God. It is to live his life, to have a part of his own infinite joy and happiness. No pen can write, no tongue can say, no mind can conceive what it is to be one with God, to possess him, to live his life and to partake in his happiness.

We cannot see without the light. Darkness makes all things invisible. We cannot see the reason of things without the light of reason. We cannot see God without the light of glory. The material light, which enlightens all material things, comes from the material sun shining in the heavens. The light of reason comes from the Son of God, the eternal Reason of things. The light of glory comes from the divine essence of God. Coming streaming down into reasonable beings in heaven it raises up the soul or the created mind and will to a state of perfection far above all that is due to nature. By that we see God as he is in his own incomprehensive, supernatural state.

By the light of reason we see God as the author of nature. By the light of glory we see him as the supernatural Being, as he lives in the supernal, spiritual family of the august

Trinity. In this life we receive in our eyes the sensible light of the sun, by which we see material things around us, and by which our knowledge of the world is vastly increased far above what it would be if we were born blind. But it gives us only the knowledge of the crude, singular and the individual physical and material things of this world. But by the light of reason, we rise to an immensely wider field and soar to a higher plain, that of the reasonable, and there we contemplate the universal, the general, the causes and their effects, the laws of nature, the principles of things, the natural sciences, the moral order, the virtues and vices, the differences between right and wrong, justice, goodness; and from this we rise to the knowledge of the Infinite. But in heaven, by the light of glory, we rise to the immeasurable height of God himself, not only as the author of nature, and whom we see by the light of reason shining forth through his works, but by that glorious eternal light, which comes forth from him and which fills all the heavens, where dwell reasonable creatures; by this we see him directly face to face, as he is; as the One and Triune God. The abode of the good, then, is filled with not only the light of reason as in this world, but also with the light of glory. By and in that light the good see God. As the light of the sun shines in our eyes, as the light of reason enlightens our minds, so the light of glory shines upon the intellect of the angels and saints in heaven and enables them to see God as he really exists, and is, and lives by his own unchangeable essence, glory and happiness.

But what is this light of glory by which or in which the created mind sees God? Some think that it is a created mode or quality, which is inherent and born in the soul. Others say it is the charity or love of God above all in the soul of the dying just man. But we would rather not follow the opinion of those, who contend that it is like the material light of the sun, but rather compare it to the light of reason, something external to the soul, and that it is the Personality of the Holy Spirit, or God himself, by love united to the created mind, and who gives it a new power or quality by his presence and thus raises the disembodied mind up to a new and heavenly sphere of viewing God, the Supernatural.

By reason we get only a natural knowledge of God. In and through nature and in the laws of creatures, we find but an imperfect knowledge of God. That is a natural science or knowledge of the Creator. But in heaven, by that

beatific vision, we will see him as he is in the supernatural state, in his own divine nature and incomprehensible essence. The Godhead, then, is the object of the beatific vision of the angels and of the saints in heaven. To use figures of speech, they stand on the brink of the outer rim and gaze into the limitless, incomprehensible, bottomless unity, universality and omnipotence of Beauty, Truth and Goodness. That is the glory and happiness of heaven.

To try to describe the glory and the happiness of heaven is useless. For what no mind can conceive no pen can describe. It is as much above the pleasures of this earth, as God is elevated infinitely above creatures. It is "pure spritual delight." The happiness of heaven does not consist in sensible or in material things, as the ignorant sometimes suppose. Neither is it sensuality, as the Mohammedans think. For the happiness of heaven does not come from any creature, but from the Creator. For no creature can fill and satiate the human heart. We are apt to measure the happiness of heaven by the joys of earth. But that is wrong. For as the heavens are above the earth, as God is infinitely superior to all creatures, so the joys of heaven are above and beyond all earthly joys that we can conceive or imagine. For the pleasures of this earth are caused by our attainment of knowledge and by our union with creatures. The true and the good, these cause our happiness in this world. But in heaven the mind will be enlightened with the splendors of the True and the will then will possess the everlasting and unchanging Good. Thus the happiness of heaven is caused by the created reasonable creature partaking of the uncreated joyousness of God, bathing in the ceaseless, intellectual streams of his eternal glory, and drinking in the ecstatic Good.

The mind constantly seeks the True, and the will always looks for the Good. But in heaven the mind forever will drink in the real, original, genuine, eternal True, the Son of God himself, and there the will will possess the only unchanging, all absorbing Good, the Holy Ghost. But these two persons of the Trinity are God, the very eternal omnipotent Deity. Thus these two reasonable faculties of creatures, mind and will in heaven, really live on God. They drink in his very essence, and live on his divine substance. They are united to him by the very closest union. The Incarnation alone excepted, there can be no closer union between two separate beings, than the wonderful union between the reasonable creature and the Creator in heaven.

Thus this wonderful union is such that God gives his own happiness to the created being united to him. He fills that soul or that angel with all truth, all pleasure, which its nature can sustain. He pours into them from his own infinite and exhaustless essence, joy, pleasure, happiness, truth, love, charity, peace, contentness, quietness, rest. But—why try to describe heaven? We only can say the happiness of heaven is the eternal happiness of God himself, which he communicates to those who are united to him by love. The joys of heaven are inconceivably higher, more intense and more wonderful than any creature can conceive who has not tasted or experienced them.

Heaven is defined by Bachus as "a state in which we are made happy by the possession of all goods;" by St. Augustine as "the supreme and the accumulation of all good things;" and by the scholastics as "the supreme good, satisfying in a complete way all our reasonable desires." That good spoken of here is evidently exterior and outside us. That is objective happiness; but the interior happiness caused in us by this is the act of possessing that good. The first is the supreme Good, that is God. The last the possession of God, that is heaven. The possession of God is to see him as he is face to face, to live his life, to partake in his divine nature. That takes place in virtue of the light of glory. That vision gives rise to love. For we love perfection wherever we find it, and God is infinitely perfect, and therefore his perfections inspire our love for him. Love unites and therefore by that love we unite with God and become partakers in his own divine nature. Thus we participate in his own infinite happiness.

That vision of God caused by the light of God's glory shining down upon our mind, enables us to see and know him. In God are all sciences, all knowledge, all truth and perfections, and in him we see all in their original perfections. Now we see him only in creation, in his works in creatures, which bear his image. But in nature we see him as the Creator in his external works. Each thing which exists can be known, because it is true. Then God, who is infinite Existence can be seen and known by created minds. He is known inasmuch as he shines down on minds with his light of glory. But that light of glory being God himself united to the creatures, it is infinite because it is the infinite God raising up the creature to himself. But the created mind of man or of angel cannot completely bear or receive the infinite, which is boundless, because every creat-

ure is finite and bounded. Therefore no creature can know God perfectly. Only God knows himself perfectly, because he alone is infinite and that knowledge of himself is his own infinite Son. The created mind then in heaven sees God face to face, but does not, nor cannot see all the perfections of God. Inasmuch as man merited grace and the rewards of heaven, while in this life, so in that measure and in that proportion he is rewarded by a brighter light shining on him from the divine Essence of God. For in being good and in living a holy life, while on this earth, he resembled the good and holy Lord, and the more we resemble him, the more we become capable of partaking in his divine nature, and in receiving from him the light of his glory, which enables us to know him better, and the better to partake in his happiness and to live his supernatural life.

It follows, then, that in heaven all see God and live his life, and that all partake in his unutterable happiness. It also seems reasonable to say that there are diverse stages or degrees in this happiness, that the better and more godly we live while here below, the more God will communicate himself to us, because while on earth we resembled him more than the sinners and the ungodly. Therefore, there are many different rewards in heaven or many "mansions" in our Father's house. Therefore, there are different rewards in heaven, different stations of glory. As numerous angels of the different choirs fell, and left vacant their stations of glory, so the saints and the good af this world are at death directly promoted to their seats and mansions of bliss according as they merited these rewards by their good lives.

We have spoken of seats and of mansions of bliss in heaven as though it was a material place. Heaven is not a place, but a state. For place belongs to bodies, which have extension, while spiritual things have no time or extension, nor do they dwell in any place, but where they exert there power. God has no extension. He is the Universal, infinite in every degree and without the imperfections of material things, such as extension. He is here, and there, and everywhere. He comprises and contains all and is contained by nothing. He is, then, within us, and without us, and he is nearer to us than we are to ourselves. When God shines on the soul with the light of his glory, when he gives to the soul his own life, and to partake in his own happiness, that is heaven. Then at death the soul does not have to wing its way up to heaven. For as in astronomy there is no up or down, so there is none in this case. For to possess God

as he is, that is heaven. And as he is everywhere present, the moment the soul leaves the body, that instant it is in the presence of the everywhere present God. It is in the last term of its existence. It has no color, shape or wings, for all these belong to material things, while it is a pure spirit, which has just separated from this body of clay. It is a pure living reasonable force, and if it was in this life united to God, by love and charity, if no sin hindered it from entering directly into the presence of God then God unites with it. That is the way we die and go to heaven. But those who turn from God in this life, and commit sin, they deliberately fall away from God. They are not united to him at death, for they were not during this life. They go not to heaven, but to hell. Hell, therefore, will be the subject of the following chapter.

CHAPTER XXVII.

Hell.

Angels and men, because they have liberty and free-will, have authority and command over all their motives and reasonable acts. Being free, they can do either good or bad. Justice demands that they be rewarded or punished, according as they do good or evil. In seeking truth and in doing good, they freely and deliberately make themselves still more perfect images of God, who is eternal Truth and Goodness. In doing bad, they prostitute their reason, abuse their liberty, and degrade themselves below the brutes. By being wicked and in committing sin, they tend to destroy in themselves their resemblance to their Creator.

By virtue, they elevate themselves to a closer resemblance to God, and rise higher towards him. By knowledge, they know him, and by love, they unite to him. Being in union with him by truth and love in this world, at death they are united to him forever in heaven. But when a reasonable creature sins, he breaks God's laws. He freely choses as his last end not God, but the pleasures of some creatures. With mind and will made for God, the sinner turns to creatures, and chooses them in place of God, for whom all reasonable creatures were made,

God rules all creatures below man, by changeless laws. In the mineral and vegetable kingdoms, they are called the laws of sciences and the laws of nature. In the animals they are called instincts. They are the reason of God guiding creatures. In reasonable beings, although they have direct command over their reasonable acts, still the law of God and his eternal Reason, is within them. Thus by nature, and without being told, we know the difference between right and wrong, we know that some acts are good, others bad. Even in the heart of the most degraded and ignorant pagan, there is still yet the powerful voice of conscience telling him what to do, or what not to do. That is the natural law, the instinct of humanity, the voice of God's Reason in the human heart. It shines brighter

and clearer than the scientific laws, guiding the minerals and plants, brighter than the instincts of animals.

That natural law in reasonable creatures, directs them in their relations with themselves and with others. It is called the moral law, and its study forms the science of Ethics. Following it, a people becomes moral; disobeying it, a nation becomes immoral. Having been brightened and perfected by revelation, it becomes religion.

Revelation then, and religion, say nothing contrary to this natural, moral law, written by the God of nature in the heart and conscience of each reasonable creature. For reason proves religion, and religion completes, strengthens, clears up and solidifies the natural morality of man. The laws of civil society and of governments united with religion, voices and gives expression to the natural laws of ethics and of morals. Therefore, civil laws define the duties of men to each other, while religion lays down the duties of each human being, both to his fellow-man and to God.

Reasonable creatures, being masters of their own motives and reasonable acts, all men must have moral laws to guide them to their last end, the possession of God. But if they do not obey these laws, they rise in rebellion against their Creator's laws, and separate from him who is all obedience and law. The separation then, of reasonable creatures from God, in the spirit world, that is hell.

God, therefore, in giving us reason, the love of the true, and that ceaseless appetite for pleasure, he did not create us for hell, but for everlasting joys with him in heaven. But as by very nature, he is law and order, so he wants us to go to heaven by law and order, by grace, virtue and good works. The sinner will not do this. He wants to do evil and then expects to be rewarded the same as the good and the virtuous. That would be unjust on the part of God. Let no one say that God is unjust because he sends creatures to hell. They send themselves there. For God so loved man, that he died for all mankind, and he gives all men strength and grace sufficient to do right, if they will only follow the sweet inspirations of his grace.

Nor should we say that God ought to deliver the damned from their sufferings. For we see that he does not change his laws. He does not save men from sickness, but he lets the course of nature have its way. He does not deliver us from misery in this world, and will not in the other. He does not give back the lost eye, nor make a new member when destroyed. He performed great miracles at the begin-

ning of the Christian religion, in order to attract men to its divine institutions. But that was necessary then for the whole human race, to attract their minds to religion, but it is not so now. The delivery of a damned soul is a particular favor, and it is not of such importance as religion is to the human race.

Besides, the fear of hell keeps men honest, makes them good citizens, and keeps society in order and in harmony. For, take away the rewards and punishments of the future life, and what motives will move the consciences of men to right? For the civil laws are imperfect. They are sometimes oppressive. They foster the cute, the rich, and influential, and it is often easy to evade them.

In society there are laws which rule human conduct. If we obey these wise laws, we live in peace, harmony and prosperity. But the one who breaks them is tried, convicted and imprisoned. The murderer is hanged. But no one says that the judge and jury are unjust if they condemn the murderer to death according to the law. So no one can say that God is unjust, because he sends sinners to hell. For he is both merciful and just. In this life he is all mercy. For no man so loved his friends as to die for them that they might live. This God did for us. But if we rebel by sin, as the rebel against society is put to death, or shut up in prison, so God's wise laws send the wicked and the rebels against him to hell. Thus hell is God's state prison.

He who dies in sin carries with him the malice of that sin. By that sin he degraded his mind and will, and as in the other life there is for him no grace, no merit, so he remains forever in that state of rebellion against his God, and therefore in him there can be no change.

His mind being turned from truth and reason, that influences the will, and that reasonable creature remains ever in rebellion against God. Therefore the pains of hell are not salutary or purgative, and there cannot be any change for the better in the lost.

He rejects and spurns God, and takes the pleasure of a creature and makes that his end. The one therefore, who sins, does violence to his reasonable nature and to the God and Creator of nature. For the desire of the true and of the good is written in our very nature. Reason, religion and conscience tell us what is right and what is wrong. If we do not know that it is wicked to do a thing, then to do it is no sin for us. For there can be no sin without the

knowledge of the mind and the freedom of the will in committing the sin. Then sin is the free and deliberate turning away of the mind and of the will from God the eternal True and Good. He who sins, therefore, turns away from God, breaks the bond of love which united him to his Creator, and places his happiness in creatures, in place of in the Creator.

Sin, therefore, is the absence of moral uprightness. Freely and deliberately then the will and mind turn away, from their real objects, the true and the good in God which our imperious, reasonable nature demands, and seeks them in the enjoyment and the pleasures of creatures. Then the sinner, by his own free-will, breaks the bond of love and friendship, which united him with his Creator. At death then, he finds that there is no union of love and of friendship between him and his Maker.

Therefore it follows that, God never sends anyone to hell. They always send themselves there by freely and deliberately turning away from the Creator, the True and Good, who is their last end.

The sinner does not always and deliberately reason out these things as they are written here. But he does so, at least vaguely in his mind the first time he commits a great sin. Then the horrors of sin are great, but they become still more dim by the clouding of his conscience by subsequent sins. Sin is the absence of moral uprightness. It is moral, reasonable badness. It is not a real being, but like evil, it is the absence of good in the free act of reasonable beings. As error is the absence of truth, as suffering is the absence of pleasure, as darkness is the absence of light, so sin is the absence of moral goodness. All nature is ruled by laws which guide senseless and unreasoning creatures to their end and rule their every act. There is no sin then in creatures below man, for they have no mind and free-will, no reason to abuse, and the laws which guide unreasoning beings, are the supreme reasons of their acts, given them by the Supreme Reason of God, who is the eternal Son, to whose image and likeness they all were made. All is beauty, harmony, peace and goodness in the lower kingdoms of nature.

The sinner while in this life still sees the beauties of nature, the harmony of creatures. The enjoyments of human life are still open to him. He still sees the true and the good in creatures, and he may live in sin and still be very happy, especially if he enjoys riches, learning, the pleasures

of the senses, and if he has no remorse for his crimes. All this takes place, because God still rules nature by his wise laws, and like a good father, he showers down his blessings and his abundance on the good and on the bad. He does that through the laws of nature, which make no distinction between men. But when that man passes into the other world of spirits, at his death, he is then in an entirely new sphere, in new and changed circumstances. He is no more united to the physical world, for his spiritual soul has separated from his physical, material body, and he partakes no more in the laws which rule material things. The law of spirits now pervade over all the acts of his soul and of his spiritual being. He can no more act through his senses, and for him time in this material world has now passed by forever.

The soul of the dead can use only its reasonable faculties of mind and will, because its sensitive parts, which animated its body, cannot exercise these functions without the body. But the mind of the sinner cannot see the true, nor his will possess the good, because God the True and the Good was driven away during life by sin, and God is not with the soul now after death. The mind of the damned then forever dwells in spiritual darkness and the will finds no good. To see the Son, to possess the Holy Spirit, to repose in God, to live his supernatural life, to become a partaker of his own divine nature, to have a partnership with him in his eternal happiness, that is the end of all reasonable creatures. That is heaven.

But here on this earth, when a person deliberately and freely sins and does evil, he breaks God's law. He turns from his last end, God, and turns to the happiness of creatures. With mind and will made for God, he by his inborn liberty, freely repels his Creator with his eternal rewards and in place of him, he turns to the happiness and pleasures of those creatures he choses in place of God.

We will suppose that the sinner is at the moment of death, a moment which will surely come for all of us without exception. While in this world, therefore, the sinner was surrounded with all the beauties of nature, with the harmony and regularity shining all through the great Creator's wonderful works. While in life he saw God's joyous world around him. There was nothing then to disturb his peace. He possessed comfort and happiness, such as belonged to his health and station in life. Nothing disturbed him, but the little miseries of human faculties, brought on

by the loss of grace, coming from the sin of our first parents. Such is the lot of all human beings here below, whether saints or sinners.

The laws of nature, seen in the natural sciences as the rays of divine Reason, guiding creatures towards their end, these laws do not change. A train of cars will plow through crowds of human beings, and tear and smash, dismember and kill the young and old, the saints and sinners, the innocent and guilty, without regard to the sorrows and sufferings it causes, because God will not step in and stop the law of inertia, by which bodies will ever move till stopped by another force. Thus we see that the laws of God in nature are heartless and unfeeling, if we stand in the way. Sickness will strike down in death, the young, the beautiful the learned, the useful, the beloved. Disease spares no one from the cold embrace of death.

As the visible world is but an image and a figure of the supernatural world of spirits, so let no one think he can escape hell if he dies in sin. Let no one soothe himself to fancied security, thinking that God will make an exception for him. This is a great delusion, almost as bad as indifference towards religion, and forgetting heaven and hell, and the future life which destroys so many souls.

The moment then, that the soul of the sinner passes into the world of spirits, there it finds that it is not united with the true and the Good, the objects which his very nature overpoweringly demands. He is then in a state separate from God. In life by sin he deliberately turned away from God, the True and the Good. After death then, the sinner has neither truth nor goodness.

Let us consider the state of that soul. We know not by experience what it is to see no truth, to have no happiness. All to that unfortunate soul is the false and the miserable. Nothing true enters its mind. All is deformity, irregularity, discord, degradation. As without the light of the sun, we can see nothing, as without the light of reason we can see no intellectual truth in the right way, so without the light of glory we cannot see God. That soul, which in life freely and deliberately by sin separated from God, so now it finds that it has not God. It cannot reason in the right way. All it sees is error. As great mental sufferings will at last unseat reason and make the sufferer a raving maniac, so that soul, deprived of the true light of reason, sinks into a state of the most awful, unendurable horrors. As God is the source of all happiness, so now there is no joy or pleasure for

that unfortunate. It is in a state without the boundaries of God's goodness, and not one single ray of pleasure ever enters that miserable soul.

All is misery, suffering, unquietness, unrest. God the True and the Good, whom he saw during life in the true and good of nature, he drove him out by his own free act, in committing sin. Turn where it will, the mind sees not God the True, but error, lies, deception, rebellion, pride, presumption, ambition, injustice. Seek where it will, the free-will finds not God the Good, but oppression, emptiness, sorrow, despair, no hope, no chance of reward, no change for the better. That soul has lost God, and that by its own free and deliberate sinful act. It now sees clearly and unerringly but too late that it spurned God during life, and that it has passed forever from its chances of improvement. It realizes that at last it is forever lost to the True and the Good, who during life naturally and by grace enlightened its mind and filled its will with happiness. That soul is in an awful state. Its very nature imperiously and loudly cries for the God, whom it was made to possess, and no more does it see God and his eternal Beauty, Truth and Goodness. All is lost and lost for eternity without the slightest hope of ever again seeing even one ray of him, without even one glimpse of that Beauty, Truth and Goodness, which it once saw dimly in creatures during life. Picture to yourself all the sufferings of this world; the anguish of the sick, the pains of the diseased, the sorrow of the afflicted, the anxiety of the troubled, the loss of sleep, the mental miseries of the persecuted, the sufferings of the martyrs. Imagine all the troubles you ever suffered, and then multiply these by thousands, and you will have a faint idea of the frightful, unutterable woes of those reasonable beings who have lost God for whom they were created, and for the possession of whom they were made, which their very nature demands, which the constitution of reason ceaselessly and imperiously and ever seeks, and you can realize what is the sufferings of the damned. The loss of God then is hell. A sense of the loss of the Creator then is the chief pain of hell. It is an indescribable, intellectual mental suffering.

Who does not know that the sufferings of the mind are far deeper and more piercing than any physical pain. For as the mind is superior to anything physical, so mental suffering is far more intense than any kind of sensitive pain. In hell then there is the most frightful mental sufferings, which come from the clear sense of the loss of God.

As heaven, therefore, is the possession of God, and life eternal with him, so hell is the loss of God. In heaven we partake in the nature of God, live his supernatural, exalted life and become partakers of his unsoundable glory, joys, pleasures and happiness, so hell is the loss of all these for the reasonable creatures made for them. Hell then is the state of the reasonable creature entirely separated from God, a state in which not one ray of supernatural truth or happiness ever penetrates. Whence to be separated from God in the last state of man's existence in the other world—that is hell. To see God in the light of glory, which enlightens in the mind of reasonable creatures, that is heaven; but to be deprived of this light for ever and ever in the other world, that is hell.

As in this world, when a Christian, who has once been enlightened by faith, hope and charity, when he loses these and falls away from the Christian religion and from God, he sinks lower than the pagan, so the reasonable creature, who falls away from God, the True and the Good, he sinks far below any simple and unreasoning creature in pain and sufferings. As when a man in this life loses his religion, all his natural goodness seems diseased, cracked and distorted or unbalanced, so in hell each faculty of the soul becomes diseased, distorted and degraded. A spiritual insanity seizes them. They see God by the light of reason, but only as their punisher. Distortion, false reasoning, errors, deception, seizes the mind and blinds it. Hate, anger, jealousy, rebellion, pride, ambition, disgust, unrest, rules their free-wills. They are filled with spiritual darkness for they see not the True. They seeth in sorrow, as they possess not one ray of the Goodness and happiness of God.

The pain of the damned, therefore, is the loss of God, that is the remorse of conscience, the worm which never dies. It is called a worm, because it arises from the rottenness of sin.

Every created reason, if not confirmed in glory by the vision of God can turn to evil. Thus the angels before they were admitted to the light of glory, because they saw God but dimly, they abused their free-will, and turned away from the divine will and sinned. For the angels in the first state of their existence, did not see God face to face, but only dimly through creatures, as we do now. A part of them turned from God and became demons. Reasonable creatures sin by turning from God to the pleasures of creatures. But the angels having no body had no animal passions or sensitive

pleasures and therefore they did not desire sensible pleasures. They committed no impure act, as men so often do when abusing their animal passions. Having only mind and will they sinned only by the abuse of their reasonable faculties. By the mind they did not see God clearly, but they saw themselves with all the angelic beauties and perfections of their own spiritual natures. They placed then their last end and complacency, in themselves, and they refused to serve and worship God. Whence they sinned by pride. They made themselves their only end, and then in place of serving and worshiping their Creator, they worshiped themselves. Hearing after their fall and damnation that man was to take their place, they became filled with jealousy towards the human race. The sin of the fallen angels was, therefore, pride, rebellion and jealousy. From these sins as from poisoned fountains spring idolatry, the worship of creatures, disobedience, infidelity, disbelief, blasphemy, the dishonor of God. They poisoned Adam by deceiving him, and brought all the miseries on the human race.

The bad angels, therefore, wanted to be like God. They knew by their natural reason that they could not be in every way like God, who by nature is the Infinite, while they are creatures. But reasonable creatures were made to be like God, not by nature, but by grace to partake in his own nature and happiness, which is heaven. This is the only way of being Godlike. But the evil one wanted to be like God, without his grace, to become like the Most High by his own natural powers, and to receive divine honors from all the angelic hosts below him. In doing this he trampled on God's eternal law of order, of reason and of grace. Every created reason tends towards the true and the good. That is the nature of intellectual beings. The minds of the demons then in hell still seek the true and their will yet desires the good. But they are away from God, the eternal True and Good, and thus they find neither truth nor goodness in the supernatural order, from which by their own fault they fell. Perhaps they fell by the first act of their reason, as some writers say. But we think not. For they saw God only indirectly through their own created perfections and their first acts after their instantaneous creation was to contemplate their own spiritual beauties and transcendant perfections, and from that to rise to the infinite perfections of God which each creature represents. As they received sufficient grace to merit heaven, it seems more probable that the first act by which they turned their

minds towards God was to refuse to obey him and to seek eternal truth and goodness, not in the Creator, but in themselves.

The leader of the angelic hosts was named Lucifer. Seeing his own perfections so great above the others around him, he rose in rebellion against God and wanted to be like the Creator. As the lower angels in heaven were taught, instructed, and illuminated by the higher and superior spirits, so he deceived the others below him and led the hosts of heaven to perdition. He belonged to the choir of Cherubim, because the Seraphim being next to God they were united to him and ever buried with charity, or the love of God. As their name denotes, they burned with supernatural charity and love. The greater this charity, the more the creature unites with God. Lucifer, the devil, therefore was once a cherub.

By his bad example, by false teaching, by lies, by deception, and by coaxing, he induced the spirits below him to fall away from their Creator. Revelation tells us that not all, but only one-third of the heavenly spirits fell from grace and plunged themselves into the depths of hell. The fallen angels being by their very nature intellectual creatures, they still preserve all their natural gifts of mind and free-will. But no spiritual intellectual creatures in the kingdom of spirits can be satisfied and rest contented, and exist complete without seeing the True and possessing the Good by grace. Then the angels having fallen away from God, and from their supernatural state, they receive no grace or supernatural truth, happiness, or love of God, and, therefore, that which would make them complete, truth and love, is not in them. Therefore, they are blinded and live in continual rebellion against God. They dwell amidst intellectual error where intense intellectual night broods over all, while the good angels live in the intellectual light of God's Reason, his only-begotten Son. God separated them from the bright faithful angels of light, and thus we read that at creation, God divided the light from the darkness, that is, the good angels from the bad, as the first chapter of Genesis says.

A spiritual being is whole or nothing. Therefore, the damned spirits still remain intellectual creatures, and they yet possess all their natural knowledge, which they had before their fall, because nothing can be taken from their nature as we can amputate a limb or member from a man. But the supernatural knowledge they derived from the

grace of God, is either greatly diminished in them, or completely taken away. Besides that, they have not one single ray of divine love, no sentiment of charity ever animates them, because that is a free gift of God and does not belong to the nature of any creature. As God's substance is infinite it transcends any mind, which could be created to see him face to face. Created reasons are raised up to that height of seeing God face to face, by grace and by the light of glory. But the damned in hell have neither grace nor the light of glory, like the angels and saints in heaven, and, therefore, they cannot see God face to face. Yet they have a more perfect natural knowledge of the Creator than any man on earth, because of their superior minds. They acquire knowledge, therefore, by the innate activity of their own minds from the study of mankind, of nature, and of the sciences, and all this is yearly added to by long experience in worldly affairs.

But the knowledge they acquire they turn to evil. Thus they have often appeared to men under the shape and appearance of their dead friends, in order to deceive them and to draw them down to perdition. They try to imitate the indwelling of God in the soul and sometimes they take possession of man to afflict him. They delight in destroying the beauties of nature, in frustrating God's redemption, and in dragging men's souls down to their own degraded state.

We ask why they do so? Because they are jealous of us, for we were created to take their places in heaven. Did you ever see a jealous wife or husband? The fury of that person is indescribable. Contemplate the unrest, the ambition, the ceaseless struggles of the proud, the jealous, the insane, the diseased. Stop and think of the anxiety caused by some impending evil, disappointed ambition, the shame of the disgraced, the fear of what we do not understand, take all the spiritual sufferings and the mental sorrows we can conceive, and multiply them by thousands and you will have an idea of the awful state of those demons, who deliberately fell from bright heaven into the spiritual darkness of hell. It is inconceivably beyond anything we can conceive upon this earth.

Heaven, therefore, and hell are not places, as place is a quality of bodies, and reasonable beings are above bodily qualities. Heaven and hell are, therefore, states of spirits. One is the state of possessing God, the other is the state of being lost or separated from God.

It is the nature of the mind to fixedly and firmly cling

and adhere to truth. It is also the property of the will to grasp the good, the possession of which is joy and happiness. But only God possesses truth and goodness without fault, error or mistake. Created reasons, as men and angels, unless they see the truth and goodness of God before they see him face to face in heaven, are very liable to make mistakes. We know by experience how often we make mistakes in worldly things. But especially in religion men more easily go astray, because religion is the bond which unites reasonable creatures with the Creator, and reason alone is not capable of rising unaided to the height of the Infinite. Therefore, there are numberless false principles and ideas of religion in the world, and there are numerous sects, churches, beliefs and creeds, whereas, there can be only one true religion, as there is but one God, and there must be only one true way of worshiping him in spirit and in truth.

Any one can see how difficult it is to change men's minds relating to religious things. We may lay before them the falsity of their beliefs and prove as plain as anything the true religion to them, and still they will not believe. If God does not give men grace to enlighten them in the true way, all natural and worldly motives, reasons and arguments are useless, and only confirm them still more in their religious errors. All this comes from the nature of created reason, which ever clings to what it thinks is the truth and the right.

If this takes place in this world, where man is in a state of continual change, and where he is not in his last term of existence, what must be the unchanging state of the lost spirits and souls of the damned, who died in sin and passed away obstinate in evil, whose minds in hell are in rebellion against God, and poisoned with error regarding the Creator. The mind and will of the damned, then, are distorted with error and degraded with evil. Made to adhere fixedly and immovably to truth and goodness in heaven, after death the lost souls like the demons adhere fixedly and unchanging to their errors and thus they continually rebel. Filled with pride they will not admit their faults.

We meet people of that kind in society. How hard it is for them to obey, to be humble, to admit in public their mistakes, to acknowledge that they are conquered or beaten. All this a thousand times increased, gives us an idea of the state of the demons and of the damned.

The damned adhere immovably to evil, and therefore they will not turn back to God. That seems singular. We have

all known how a balky horse acts. We also experience how useless it is to argue with men, and how hard it is to change the opinions which they have learned in their youth and acted on during life. We know what it is to move a stubborn man, especially one whose proud will has been disappointed. All this in an eminent way is found in the lost spirits. For it is the nature of spirits to tend towards fixed, changeless and supreme principles, and when once the minds of the angels are made up, they stick to that as we do to the axioms or to the truths of mathematics. Thus the bad angels and the lost souls have turned away from God in sin, and in the other life they will not change. They adhere as strongly to evil, as the good angels do to God. They are like the convicts in prison, who, although they are deprived of liberty, still they are determined to do evil again when they get out.

The damned, therefore, dwell in continual rebellion against God. They are obstinate in evil, and they will not obey. Now no creature can tend towards God the Infinite, unless God raises him up by his grace, because the distance between the Creator and creature is infinite, and it cannot be bridged by even the highest creature God could make. Therefore, receiving no supernatural aid from God, the damned do not tend towards him, but ever remain in the same state of rebellion into which they first fell. Thus it is evident that they are hardened and headstrong in sin, and God cannot save them as he wishes, because they would spurn salvation at his hands. For they would rather suffer in hell than serve God in heaven. They are too proud to be redeemed. We see a shadow of that rebellious spirit in proud stubborn men, in infidels, heretics, etc., who rebel against the Church, and place themselves and their own opinions above its divine teachings. A Saviour was sent to mankind, and not to the demons, because we sin rather by weakness, deception, ignorance, and by the allurements of passion, than by the love of rebellion and of malice as the demons did.

That natural inclination by which each reasonable creature tends towards the good, and by which created minds seek truth [illegible] comes from the God of nature, and in that respect the demons are not bad but good. For all which comes from God, like himself is good. But that malice by which they seek not the truth, but error, and by which they do not good but evil, that comes from themselves, from their own depraved wills and blinded minds.

They never saw God face to face as he is in himself, and as the good see him in heaven. They know him, therefore, only as the Creator of their punishments, and they hate God with a most intense hatred. Their minds, therefore, are ever turned to error, and their wills to evil.

We are rewarded for our motives, by which we tend towards the good. But in heaven, or in hell, there is no motives urging spirits towards good or evil. They are at their last end. For the blessed unchangingly possess God, and the damned forever adhere to error and to evil. Therefore, there is neither good nor bad motives beyond the grave, for there, each creature has already arrived at its final end and destiny. Whence, it follows, that the good in heaven do not go on meriting a higher reward, nor do the lost in hell from age to age obtain a greater punishment. The rewards or punishments then of the other life do not increase or diminish. We are rewarded as we merited at the moment of death.

By their intellectual memory, they recall the happy state from which they fell. They see the good angels dwelling now with God and they understand and see the happiness of man on earth, and the supernal joys of the saints in heaven. All this is but so many causes of sorrow for having lost them. They think of God only as a horrible punisher. Not one ray of his truth or goodness enters their depraved minds and wills. Who, therefore, can conceive the frightful state of the damned?

Crimes, insults, and rebellions, are according to the dignity and the majesty of the one offended. But in sin the wicked sins, insults and rises in rebellion against God, who is in every way the Infinite. Inasmuch as sin is against an infinite God, in this respect, every sin is infinite in nature and malice. But justice always demands that the punishment be in proportion to the guilt and the malice of the crime. Sin being infinite, it must have an infinite punishment, otherwise, justice would not be satisfied. But punishment can be infinite in two ways, infinite in intensity of pain, or infinite in length or duration. But every creature being finite in nature and extent, no created being could bear a suffering infinite in intensity. The punishment of the damned, therefore, must be infinite in length and duration in order that justice may be satisfied.

Sin, therefore, being infinite must be punished with an infinite pain or suffering. But a reasonable creature, which is immortal or infinite in duration, as men and angels, they

can only bear pain infinite in duration. In that way every sin being infinite in malice, because against an infinite God, is punished by the pains of hell, which last forever, or are infinite in duration. It is reasonable then to say that the pains of hell will last forever. That is the punishment even for a sin committed in an instant. For we know that men are often imprisoned for life for a rape or for a murder, which was committed in a moment of time, and no one finds fault with the civil law for condemning them. The thoroughly bad are separated from society, which they afflict and they are shut up in prison for life. The murderer is hung for his crime, and still no one finds any fault, for the law condemns him to death, just as the law of God and of reason condemns the great sinner to hell forever.

The punishments of the civil law are inflicted on the guilty, for three reasons: to correct the guilty, to give an example to others so as to keep them from crime, and that justice may be satisfied. In the other world there is a hell, which is God's prison, in order to punish the wicked, that the fear of it may keep men good, and that God's justice may be satisfied. The reasons, therefore, brought against hell, may in the same way be said against every prison in the land.

The wicked sinner places himself in a state of sin from which he cannot deliver himself. For no one can forgive sin but God, or his agents, the clergymen, who apply the merits of Christ to the soul of the sinner. But if the wicked dies in sin without repentance he is lost forever. For if a man throws himself into a pit, from which he saw that he could not deliver himself, he remains there forever, and he alone is to blame for his own destruction. The wicked leave God and turn to creatures and this they do deliberately, and they alone are to blame for their damnation.

But the Son of God assumed our human nature, and put his own Person, the Person of the divine Word, in place of the human person in Christ. The sufferings of Christ's human nature were infinite in value, because they belonged to the infinite Person of the Son of God. His redemption, then, was of infinite value, and he offered all the woes and pains of the crucifixion as the price of man's redemption. Thus he paid the infinite price due God's justice for the infinite malice of all the sins of Adam's sons and daughters. This redemption is bought by us without labor or price, if we only obey the Church he spread throughout the world, ever living with his own very power and authority.

The clergy are his agents, his ministers, his representatives, his ambassadors, always preaching, teaching, and dealing out his redemption with the very same authority he had himself while on this earth. If men, then, do not draw redemption from the fountains of the Saviour, and if they damn themselves, they alone are to blame, not God.

In this life there is always mercy and forgiveness through Christ, and God is ready at any time to receive back again with open arms his sinful children, if they will only repent and come back to him. But those who die in mortal sin, have in their hearts no charity or love of God. True love alone unites reasonable creatures with God. But those who die in mortal sin, have no love of God, for sin drives out that charity and love. They are obstinate in evil, like men who have lived according to false principles of action, keeping them always before them till they think they are absolutely true. Thus we see how impossible it is to move men by religious arguments. They argue not for truth but for victory. In somewhat the same way the damned are obstinate in malice. They will not change during all the ages of eternity. Their minds are fixed in error, and their wills cling, incline to evil and they think they are right. God leaves them free, for he respects their liberty. Therefore, they will not change and there is no redemption in hell. For they would reject grace, without which it is impossible to turn to God.

Therefore, it matters not to us what good we may have done or how great works we have completed for society or for our neighbors. If we die in sin, we die enemies of God, and we will remain in this state during eternity in hell. If we die without sin we unite with God in charity and love and we will remain united to him during his and our ceaseless life in heaven. Heaven or hell, then, depends on the way we die. But as the good not only live with God forever in heaven, but they are also rewarded with greater or less joys and pleasures according to their works while in this life, so the bad are condemned to hell and they are there punished according to their crimes. Thus everyone dying in mortal sin goes to hell. But there he is punished with greater or less sufferings, according to his crimes. Thus the one who steals $1,000 goes to hell and there is punished, but the one who steals $10,000 is punished ten times more than the other. Thus hell is the loss of God, as heaven is the possession of God. But the punishments of hell are in proportion to the bad deeds of the sin-

ner, as the rewards of heaven are according to the good works of the saint. This, reason and the justice of God demand. As the rewards of heaven are in accordance with the goodness and virtues of the saved, so the pains of hell are according to the sins of the damned. Justice demands this. Sin is in proportion to the intention and deliberation of the sinner. In that way in committing sin, reason is more or less abused and the sufferings of the lost spirits must be according to the greater or less abuse or degredation of that godlike gift, reason. This naturally follows from our sense of justice, which we know God, in an infinite degree, possesses.

What we have written so far relates to those who die guilty of great sins and crimes. They are the great sinners, who depart from this life enemies of God, loaded with crimes, guilty of mortal sins, entirely turned away from God. But many die guilty only of little sins or faults. They did not turn completely away from God. In them the brightness of the Creator's images is but slightly dimmed. They have not entirely lost God's grace and innocence. Being loaded with sin they cannot rise to the vision of God, for no blemish mars the glories of those who stand before him, partaking in his divine nature, living on his eternal Truth and Goodness. They cannot go to hell, for it would be unjust to condemn them for all eternity to the sufferings of the damned. Yet eternal justice demands the punishment of each and every sin not wiped out by the merits of Christ.

The souls thus guilty of little sins go to a state of temporary sufferings, where, after they have satisfied God's justice, they are admitted into the presence of God, and enjoy the happiness of heaven. This punishment is purgative, and that state is called purgatory.

Pain always follows the breaking of a law. For it was given creatures in order to keep them within the law. Thus if we injure ourselves, or any animal, there follows pain and sufferings. This pain is by nature inflicted on all sensitive creatures, that they may avoid what would injure them. It is also so in reasonable creatures, that the fear of punishment may keep them within the law. Every sin is the breaking of a law, and carries with it a pain or punishment. Every law, therefore, has its sanction or punishment. Little sins, are also infractions of the law of God and of reason, and they also must be punished. If the punishment due sin is not expiated, either by the

merits of Christ, or by ourselves in this life, we must suffer punishment for it in the next world. The souls of those who die guilty of little sins are partly, but not entirely separated from God, and Christ the Saviour, and the merits of Christ, and of the good on this earth are applied to them by the Church. As we can always help our friends in this life and pray for each other, and so also we can do so for others in the other life, for they are not entirely separated from their Saviour, or the Church, his mystic body. But being in the last state of man, where their nature imperiously and ceaselessly demands God, the True and Good, they have not these, and they see but dimly God face to face, which their very nature demands.

Not being entirely separated from God, being partly enlightened with his truth, and on the way to union with him in heaven, the souls of those in purgatory receive their pains as the sick do bitter medicine, as a means of rising to their union with God. They clearly see that the justice of God requires sufferings for sin, before sin can be expiated, and, therefore, their pains are voluntarily and patiently borne. It is true that being deprived of the vision of God, and of the light of his glory, these purgative pains are above any suffering we ever experience in this life. But having lost grace by little sins, and not being entirely separated from Christ the Saviour, those who die with little sins expiate them in the other life, in that state of partial separation from God, which we call purgatory.

This is reasonable. For we will suppose a little girl ten years old, who never did anything wrong, but steal ten cents, and then she dies without satisfying for that sin. She cannot go to heaven, for nothing defiled with sin can enter there. She will not be sent to hell for all eternity, for that would be unjust. Where will she go but to a temporary place, where she will satisfy for that sin. Thus it will be with all who die but partial enemies of God by little sins. In this way God still saves them.

After the general resurrection there will be only heaven and hell, where the bodies as well as the souls of men will partake in the joys or sufferings of the good or bad. For, as Christ rose with an immortal and spiritualized body from the grave, thus all men will one day rise from the rottenness of the tomb. For the human body is a part of the innermost nature of man, and the soul without the body is not complete, and can only exercise the acts of mind and free-will, and not the vegetable and animal functions, for these

reside in the human compound, the living body animated by the soul. As the body formed a part of the nature of man, when practising virtue or committing sin, so it is but just and right that the body should have a part in the glories or in the punishments of the soul.

In hell, therefore, after the last judgment, the body will be united with the soul. Now the soul has many powers and faculties which animate the body, and gives it life and its varied functions. It is supposed by many, that the soul is tormented in the sensitive powers, by which before death it animated the body. That forms the pain of the senses, which the damned also suffer in hell as well as the pain of the loss of God.

The learned writers do not agree regarding the nature of these sensitive pains. Some, as St. Thomas, think that it is a kind of fire created by God, with the peculiar property of uniting with the soul as the body does, and thus tormenting it. Others say it is hard to understand how a material fire can act on the soul, a pure spirit. But the body is a material substance, and any hurt the body receives is felt in the soul. The sufferings of the damned are only figuratively called fire according to some, because fire causes intense physical pain when a part of the body is burned. Other writers say that as spiritual pleasures or afflictions in all their intensity are known only to the learned, so the Christian religion, following the example of the Bible and of Christ, uses fire in a figurative sense, to make the unlearned realize the awful sufferings caused in the soul by the sense of the loss of God.

But the axiom, that nothing material can act in a spiritual thing, does not apply to hell in all cases, for as the soul is united to the body, and the body acts on the soul, so this fire in hell is a peculiar creature, differing in its nature and effects from our earthly fires. It is an instrument in the hands of God to vindicate his justice on created minds, who turned to creatures in this life, and left him for sin, the pleasure of a creature. The fire of hell, then, is a peculiar fire, having a quality of uniting with the damned and tormenting them. After the general resurrection on the last day soul and body will be united; and then this fire will burn the spiritualized body without destroying or consuming it, because then the body will be immortal like the soul.

But we do not always realize that the hottest fire gives no light. Thus in burning alcohol, although the heat is intense,

still the light is but dim. The body of the sun is in an intense state of heat within, and it seems almost dark and black. For when a part of that heat is dispensed into surrounding space, the surface is exceedingly bright, and when a vast cyclone breaks up the covering photosphere, we see the dark interior as spots on the sun. Therefore, science has not yet advanced sufficiently in our day, to thoroughly understand all the sciences, and we can only stop and wait for more knowledge and light, and believe with all the great writers of the past, that in hell the pain of the senses is a fire, which God created for that purpose.

But the Church has never defined that there is a material fire in hell, although it is the belief of nearly all writers. Only four things have been defined: that there is a place of punishment for those who are enemies of God; that the pains of hell will last forever; that the punishments are unequal, and that out of hell there is no redemption. All these when explained are eminently reasonable and appeal to human understanding and to common sense.

It is true, that no fire or no punishment known to man can in any way compare with the awful sorrow and spiritual sufferings caused by the loss of God, the Beautiful, the True, and the Good. All miseries of this life pale before that frightful sorrow of created reason and intellectual creatures turned away from the Creator.

CHAPTER XXVIII.

God.

God is the Supreme Being. He is immense, unchangeable, incorporal, independent, almighty and infinitely wise, happy, holy, just, true, good. He is the Lord of all, the first Cause, the Origin and Creator of creatures, the complete Life, the infinite Reason. He is infinitely greater than anything we can conceive. For being in every way and in every perfection infinite, no mind but his own intellect can ever grasp or conceive but the faintest conception of the greatness of his attributes. What we have space to write relating to God is very imperfect, and we will give but a rapid glance at what natural reason tells us relating to God. For more we refer the reader to the great religious writers of the past, in whose works will be found rich stores of knowledge relating to God and his perfections.

God becomes known to us by reason and by revelation. We know him by reason, when, from the beauty, truth, goodness and perfections of creatures we rise to their Creator, and conceive all perfections infinite in him. For from the study of nature, and by knowledge of the sciences, we naturally rise to the contemplation of the Author of all nature, who is God. We know him also by revelation. For all which nature tells us about the perfections of creatures, revelation confirms in a remarkable manner. In these two books, therefore, in nature and in revelation, we learn of the perfections of the Deity.

In the Bible, the Supreme Being is mentioned under these names: Adonai the Lord, Elohim God, and Jehovah Who is.

God may be studied in two ways, as he is in himself, in his own divine nature, as the author of grace, as the source of the supernatural, acting directly in reasonable beings, or in the reasonable creatures of the universe made to his own image and likeness. God, considered in himself, may again be studied under two respects, as he is in himself in his own glories and infinite perfections, and as he shows him-

self to us and his angels, his other reasonable creatures, communicating his own reason, raising their imperfect reason up by his own supernatural grace, bestowing on them his own eternal life in the glories of heaven. God, in nature, therefore, is the object of man's reason and all science is but a material revelation of his wonders.

But nature alone is ruled by his laws, and it cannot rise above its own level, this world, while God, as the supernatural, gives grace, by which reasonable creatures ascend to him and live his own supernatural life. The union of all nature and of all creatures with the Divinity, especially took place in Christ in the Incarnation of the divine Word and Son of God. He is, then, the bond and union of the Creator with all created things. Therefore, he is the Saviour of all reasonable creatures, and from him alone, grace flows into created reason. The Holy Spirit proceeds from the Son as well as from the Father, and, therefore, the same Spirit of God, proceeding from the Son Incarnate, as well as from the Father, sanctifies and makes holy every man and angel whom Christ redeemed. Therefore, God is the one and only end of all created minds and free-wills of men and of angels.

The Son, the divine Plan, and the Reason, according to which each and every created thing was made, offered on the cross, all nature as a clean yet bloody suffering sacrifice for man's redemption. Whence the compendium of the universe is Christ, the Second Person of the Trinity.

The more the human mind studies and pierces into the secrets of nature, and learns the wonders of God, either in nature or in revelation, the more is man astonished at the stupendous glories of God. Men are not all religious because they do not know religion. Many studying only a part, one profession or one branch of human knowledge, they cannot grasp all the truths hidden in the bosom of God. Religion is the only proper study of man. The Church is the teacher of mankind, and those who follow and obey it are happy not only in this, but also in the other life.

No educated person will deny the utility of religion, how it keeps society in regular order, restrains passions, keeps men honest and truthful, makes them in every way better. The customs of society, the laws of all governments, the usages of trade and of commerce, all depend on the idea of God. The thought that we came from the Creator, and not from the lower forces of nature, this idea raises up man and increases his dignity and self-respect. The doctrine that we will be rewarded or punished in the other life according to

our works on this earth, this is the most powerful motive for making men honest and good citizens. No one can do so much damage as the person who destroys in the minds of men the idea of a God. This belief in God, therefore, is the most powerful motive and incentive to make people good and honest. For without it what motive have men for being upright. It is the bond of union between men, the fulcrum of civil society, government and law.

Therefore atheism or the denial of God is a spiritual insanity, which leads to the total destruction of society, government, law, virtue and goodness among men. We scarcely believe that men in their right minds can sincerely and conscientiously believe that there is no God. It is true that thousands live without ever worshipping the Creator. They do not belong to the Christian religion. That is practical atheism. But for a man who looks about him on this beautiful world and pierces into the sciences of nature and says in his heart there is no God who made and ordained the universe with such harmony and keeps it in such regularity, the one who thinks so is a fool. The human being who sincerely believes that there is no God must be insane at least on that point.

No nation or race or tribe was ever found that did not believe in a God of some kind. The history of the world, the stories of explorers and of travellers prove that. The scope of this work will not allow us to give the powerful proofs or to draw from authors to prove this assertion. It is the testimony of the whole human race. It evidently came down from our first parents, and spread with their children into every land and clime, loaded it is true with myth and fable, still the germ of truth is there.

The traditions of all nations tell us, that the world is new, that it was made not long ago. The various nations by tradition have all preserved the dim idea of God and of the creation of man in a state of innocence from which he fell by his own sin. No people believe that they always existed, and their history, their legends and their chronicles go back to a beginning. They tell us the names of the authors of their sciences, of their acts and of their inventions for the bettering of human life.

Even the worst infidels only say that they do not know whether there is a God or not. They cannot give one single proof, that there is no Creator or future life, while thousands of proofs showing his existence could be brought forward. Therefore the arguments of the infidels are only negative proofs, while those given by the great Christian writers are

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positive, conclusive, and overpoweringly convince human reason.

The interior sense or common conscience of mankind naturally recognizes a God. An interior voice speaks loudly in us, proclaiming that we came from the Creator. Each one feels that cry of nature speaking within the soul, especially in danger and in afflictions. Then we instinctively cry to a power above us for help and assistance. Those who deny this natural cry of the human heart simply lie, and they are not to be believed. That does not come from ignorance, for it is also found in the learned, neither is it derived from the laws of men, for it is also found in the legislator. Where did that come from if not from the natural light of human reason? Reason is correct and cannot deceive us on such an important point.

We will suppose that we are dealing with an infidel who is so rabid as to believe in nothing. Now as in lower creatures we find imperfections and monstrosities and deformities which by some accident did not develop according to the general plan of their species, so in the intellectual order are born some minds which become so deformed that they do not reason correctly relating to spiritual things and to God. They are the monstrosities of the intellectual order. These deformed minds usually tend towards sin. By sin they still farther debase their already deformed reason, so that they tend to become more and more unbalanced. Their minds then, by these two ways and for other reasons, tend towards the denial of God and of religion. For money or for fame or for both, they write against God and against his truths, natural or revealed, and they scoff at religion, so dear to the heart of the upright. These are the ways infidels and unbelievers are made. These are the sources of infidelity, atheism and impiety. They deny or doubt everything and there is no foundation to start from in talking religion with them.

We will suppose that a man doubts every thing. But he cannot doubt his own existence, or his own intelligence, else he is insane. For to doubt, as well as to believe, requires a mind in which the doubt exists. His own existence then is sure. But where did he come from? He did not create or make himself. He therefore came from another. The other is his Creator. Who then ever doubts must admit his own existence, and man's existence supposes creation, and creation requires a Creator, a God towards which we ceaselessly tend.

Each sentiment of the soul has an object towards which it tends. But the mind tends towards the true, and the will towards happiness. But the truth of this world does not satisfy the mind, nor does the happiness of this world satisfy the cravings for pleasure. What then will satisfy our ceaseless cravings after the true and the good, but God. There must, therefore, be a God, who will satisfy these great cravings of the human soul. If it were not so, nature would be ever deceiving us. But that cannot be, for nature is correct in every point.

Whatever is must either depend on some other for its existence, or be complete and independent from any other in its existence. If it depends on another for its existence, then it is a creature. If it did not come from any other, then it is God. If you admit that a thing depends on another, you admit that there is a God from whom it got its existence, and on whom it depends. What is not, cannot be understood, for it does not exist. What exists is either contingent, that is, depending on another for its existence or it does not depend on another, and, therefore, it is the necessary Being, who is God. As we cannot think without admitting our own existence, as the existence of anything is either in itself or depending from another, who exists alone independent and in himself, so no act of the mind can take place without instinctively admitting the existence of God. This must always be our conclusion if we follow correctly the laws of reason. Every thought of the mind, therefore, supposes a supreme Being.

We find in this world that there is a gradation and supremity of one being over another from the lowest mineral to the highest angel. From this we conclude that there must be at last some being above all, and the supreme summit of all, otherwise we would go on to infinity of beings, one above the other without end, and never stop, and there would be an infinite number and gradation of creatures. But the infinite cannot belong to nature, to creatures, or to this world as, by their nature, worldly things are finite or bounded. But the supreme Being at the head of all the others is the infinite God. We have an idea of the Infinite. But we cannot have any idea of a thing which is impossible. The Infinite, therefore, is possible because we can think of it. But the Infinite is that which has all perfections in the most perfect way. But existence is a perfection, and the foundation of all other qualities and attributes, for unless it exists it cannot be, act, or have anything. The Infinite, therefore, exists and is God.

But we cannot conceive the Infinite as passing from non-existence into being, for in that case it would not be Infinite, which contains all perfections, one of which is existence, and which we can conceive possessed by any finite being. For the possibility of not existing is an imperfection, and the Infinite can have no imperfection according to our idea of the infinite, which is measureless and boundless in every degree.

By the mind we conceive the idea of a Being simple and existing in itself, and independent of any other. But this idea must have an object, external and outside the mind, or this idea is a delusion. For everything we conceive as existing or possible, either really exists or it is possible. If it exists it is God. If it is only possible it is in the possibilities of God's power.

But we conceive the idea of eternal Truth, not only as possible, but also as really existing. Not only that, but Truth is really eternal. For our idea of mathematics and all its parts, as for example the multiplication table, considers them as being true, not only now but at all times. For there never was nor will there ever come a time when twice two did not equal four. Truth then, existed in eternity. It is universal, eternal, unchangeable. It is, therefore, not only possible, but the mind at once says it is absolutely true, and that it really exists. What is, therefore, the object of these mathematical truths but God, whose image they bear, and whose perfections they reveal to us in the natural and intellectual order.

The science of mathematics, therefore, treats of ideas which are infinite. They relate to an infinite number of things. Mathematics are true forever in the past, and they will be true unto eternity in the future. From this we conclude that the soul which can grasp infinite truth must be as long in duration as the thing it grasps, therefore, the soul is infinite in duration or immortal. But the mathematical sciences are infinite. Therefore, they would have been true even if there was no creation. They must have represented something before creation. They are the perfections of God revealed by the light of human reason. The unchanging and eternal duration then of ideas shows us that there must be a God, eternal and infinite, represented by these ideas, for an idea is the representation of something existing outside the mind, which concerns them. That must be God, the object represented by those eternal mathematical ideas in the mind.

Our idea then of truth is that it is eternal, unchangeable, universal, necessary and that it cannot cease to exist. The object then of those ideas of truth existing in every human mind, must be God, not anything created, for he alone is eternal and unchangeable Truth.

Unchangeable truths then, the object of our ideas, must be the perfections of God revealed to us by natural reason, and by the very structure itself of the mind. Thus it is evident that the idea of God is a primary truth, from which all truths spring as from their very fountain head. Every course of reasoning starts from a primary truth as from its foundation. And this primary truth is eternal, and is one of the attributes of God. Then we cannot think or reason without tacitly admitting that there is a God, represented by the necessary truths from which we start. The nature of the mind and its usual conduct in reasoning is to first lay down a supreme, universal, changeless truth, compare a particular truth with it, and then draw a conclusion. Tracing back this first universal truth we find that it is rooted at last in some unchanging, immutable axiom or truth, that is an idea in the mind which represents an immutable, eternal, infinite truth. But that which is eternal, infinite, and in every way changeless is God, who is represented by this universal idea. Therefore, we cannot even think or reason correctly for a single instant, without tacitly and in spite of ourselves admitting at least one eternal truth representing the existence of God. Therefore, every act of reason is rooted in, or founded on, or takes its rise in the truth of the existence of God. Men, therefore. who sincerely deny God are insane, and therefore, they cannot reason correctly.

The idea of the Creator is therefore impressed in every reasonable creature, and it forms the foundation of every act of reason. For the direct act of the mind is truth universal and that represents God, the only supreme universal and infinite Truth.

God is supreme Life, eternal Existence, the complete Spirit, and the Boundless, the Universal. Being infinite in every way, no created mind can entirely understand him. But the abstract idea we have of the Supreme Being is true and real, although not complete, for no creature can completely grasp the great Creator. By studying the perfections of surrounding nature we rise to those Infinite and Incomprehensible in God. From the contemplation of that imperfect idea of the Infinite in our own minds, we conceive

but vaguely the nature of God, who is the object of that idea or thought.

Without knowing why, but because it is our nature, we study the perfections of nature and conceive each of these as infinite in God. Thus we ever tacitly admit that nature reflects the face of the Eternal, that creation is a book filled not with dead words, but peopled with existing, living, feeling, reasoning beings, each stamped with the likeness and the image of the Creator. Therefore we have only to study science, to observe creatures, to find out their perfections, and to rise from them to God and then we will find these perfections in an infinite degree. They are called the attributes of God.

The perfections of God, therefore, are called his attributes. He possesses in an infinite degree all perfections which we find in creatures. For nature, the natural sciences, the laws of creatures, the beauties of surrounding things, all these are eternal in God. As the spiritual eminently contains the perfections of the material, as God is the Supreme Spirit, so he contains within himself all the perfections of both the material and of the spiritual kingdoms. But in God, who is Infinite and Boundless, all perfections and attributes are infinite.

Writers do not agree regarding the chief perfections of God. Some say that his chief attribute consists in his perfection as the supreme Being, that is existing alone, in and by himself. That appears to agree with the revelation made to Moses when he said, "I am who am." Others think that it is his infinity, while an other school, following St. Thomas, says that the chief attribute of God consists in his interior intellectual life as the supreme Reason, that is, in his ever actual thinking essence, in contemplating himself, he generates now and from eternity his only begotten Son, and Holy Spirit. God, the Father, seeing this mental Word, his Son, shining forth, one in divine substance with himself, as the reasonable image of the divine Nature, bearing all the perfections of the Deity, the Father loves him, his Perfection, and he loves the Father and that Love is the Holy Spirit, one in nature with the two others. All this supposes existence, life, reason ever in action, ever generating the persons of the August Trinity. This they say is the primary attribute of God.

The unity and oneness of God all nations, tribes and peoples led by unbiassed reason acknowledge. For throughout all the pagan nations of antiquity, as well as in our day, among

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them all is found the idea of one supreme God, more powerful and greater than the others. For reason tells us that God is the supreme and eternal Being, and that he is so supreme, almighty, infinite, and eternal in all his attributes, that we cannot conceive another equal to him. But if there were two or many infinite beings, these added together would be greater than any one alone. But the infinite is greater than anything we can conceive, and therefore it cannot be increased. But two or many infinites taken together would be greater than one alone, and that would involve a contradiction.

The idea of many gods first came either from the primeval revelations relating to the three Persons of God, afterwards debased by men, or it is the knowledge of the angels given first to man, and which degenerated by the lapse of ages during which man had no divine Teacher, the Jews alone excepted.

Then, there must be only one supreme Infinite God. Reason, then, as well as the traditions of all nations without exception, show us that God is one in Nature and in Being. Nor can we admit for a moment that there are two principles, both eternal and infinite, one good and the other bad, as some of the philosophers of Asia teach, for we cannot have two infinities at the same time without involving a contradiction. God is simple. That is he has no parts. For we have seen that all spiritual things are simple, that they are not composed of parts or compounded of two or more substances. God being the Supreme Spirit to whose image and likeness all spirits, especially those endowed with reason, are made, it follows that all the perfections of created spirits are found in an infinite degree in God. He has no body, or no extension, although he is in every place, and at the same time whole and complete in each place. For spirits, having no body, have all the perfection of material things and of bodies in a higher degree. God being the highest spirit, he has the attribute of being everywhere present in virtue of being the eternal and infinite Universal. Therefore those who think that this visible material world is a part of God are very wrong. For our idea of him is that of a supreme Being eternal, changeless, and without an imperfection, whereas this world is ever changing and filled on every side with imperfections.

Neither can we say that God inhabits the world and vivifies it as the soul does the human body. For in that case the world would live and be a part of God's nature, and the world being a finite, imperfect creature, it would show an

imperfection in God, who on the other hand, is infinitely perfect. Then those who believe that God is the universal soul of the world are mistaken. God acts in nature not directly by himself but mostly through secondary causes, through creatures. They are made to his image and likeness as the forms of animals, the souls of plants, of animals, of man, and the pure angelic spirits of the spirit kingdom. These he made as the special images of himself. They do his work. But God acts directly in the supernatural order, in the salvation of souls by his grace poured out from his Son, on the already created natures of angels and of men. Thus he decreed to raise reasonable natures to the incomprehensible height of living on his own divine essence. The Son being the source of grace, and the Holy Spirit coming from the Son, grace is the indwelling of the Holy Spirit in created reasons. God is in every way infinite. In fact some authors say that the proper attribute of God is his own infinity. In him all qualities perfections and attributes are infinite in every degree. In him the perfections of pure spirits are formally infinite.

He is eternal, that is, his duration extends in the past to eternity, for he had no beginning in the past, and his duration will last in the future to eternity, for he will have no end. But immortal creatures, as angels and men, have only eternal duration in the future, because, they having reason and spiritual life, they by nature more nearly resemble the eternal reasonable God. But other creatures below man, bearing but an imperfect resemblance to God, cease to exist after a time, for they are not immortal. God is immense. Immensity consists in being diffused through all space, pervading and penetrating all things. God is everywhere present. Knowing all, preserving everything, his divine substance is the eternal Universal, and he is everywhere substantially and entirely present. For God is everywhere, or he is no-where. If he is no-where, he is nothing and does not exist. If he is everywhere, if he is contained by corporal extension as bodies, then he is not outside the material bodies, and he is imperfect in that respect. But he is infinitely perfect in every degree, and therefore, he must be everywhere.

Although God is everywhere, still he has no extension. For extension belongs only to bodies, and spirits have no length, breadth and thickness. He has not the real extension of bodies, but the virtual extension which belongs to spirits. As the human soul, his image, is whole and

complete in each and every part of the human body, in a more ineffable and incomprehensible way, God is whole and complete at the same time, in each and every place. Human souls and angels are present where they exert their power. They are not infinite, either in power or in extension. But God is infinite in every respect, and therefore he is everywhere in nature, and without and above nature, yet at the same time because of his undivided simplicity, he is a one, indivisible, divine, eternal, self-existing, spiritual substance. As eternity is above and more perfect than time, so the immensity of God is above and more perfect than space. He is, therefore, everywhere present, not only by his substance, but also by his power, through which he creates, preserves, governs, and works in all things. He is everywhere by his knowledge, which knows, and guides and governs all. He is present to all things by his divine spiritual essence, which is present to all things in the universe. But we cannot understand all these wonderful perfections of the Deity, because we are but weak finite beings, who cannot know, or completely understand the infinity of God.

God is also unchangeable. That is, he remains the same during all eternity, neither increasing or diminishing his perfections. For he being the real infinite, that is, infinite in every way, he is greater than anything we can conceive. He cannot become greater or less. As he is the necessary Being, that is, he by nature cannot cease to exist, it is essential for him to exist in an unchanging manner, and therefore his greatness cannot change. For all change takes place by changing into something greater or less or into an equal. But by none of these three ways can God change. For the first and second changes in God would be impossible, and the third useless. He cannot change in his divine essence, for it is necessarily self-existing, nor in time, for with God there is no time, but eternity, nor from place to place, for he is not bounded by place and is infinitely and immeasurably immense, nor in any perfections, for he is infinitely perfect, nor in knowledge, for he knows all, nor by will, for he knows and wills all perfections without a mistake. For his knowledge is his only begotten Son, and his Council is the Holy Spirit, and both are equal to the Father, infinite in all attributes.

Thus far we have given but a rapid review, of the chief attributes of God, each of which is infinite and measureless, and which he cannot, therefore, give to any creature, for every creature in its own nature is finite. Nothing created

can, therefore, bear an infinite property or perfection. The only perfection which any creature can have, which partakes of the nature of the infinite is immortality, that is, an infinite duration. This ceaseless life all reasonable creatures possess, because in that they more nearly resemble the Deity, who by his very essence is reasonable and immortal. We will now consider, the attributes of God which creatures in a lower degree can have.

God lives. In him, life is infinite. He has peopled his creation with living plants, animals, men and angels, which in a more or less degree resemble his own eternal life. Of these we have already treated. But reasonable creatures being the most perfect images of God, in studying them, we more easily rise to the knowledge of the infinite reasonable life of God, who is the infinite Mind and Will.

The other perfections of God relate to the Three Adorable Persons, as really distinct one from another. Thus Fatherhood belongs alone to the Father, Sonship only relates to the Son, and Spiration to the Holy Spirit. In knowing himself, he generates the Son, and in loving the latter, both give rise to the Holy Spirit. These two operations of the Deity, generation and spiration, are not the same, as the terms of these two acts are the Son and Spirit, each differing in personality from the Father.

In rising from the study of created reasonable beings, we rest at last in the Reason of God. The object of the mind is always the *true*, and the object of the will is the *good*. The object of the mind of God is the True his Son, and the object of his will is the Good, the Holy Ghost. The possession of the *true* gives rise to knowledge or learning, and the possession of the *good* gives rise to happiness and joy. The Son and Spirit in God being two infinite Persons, each equal to and one with the Father, it follows that God is infinitely wise and infinitely good. But created intellectual beings have faculties or powers by which they attain the *true* and the *good*. These powers are not the substance itself of the thinking creatures, but they are faculties or powers or modes of these created reasoning spirits. But in God there is no power or faculty which differs from his own essence or substance, and therefore, in thinking, his own divine substance generates the Word or Thought, the Son; and his will in desiring good gives rise to the Good, the Holy Spirit. Then the True and the Good in God do not differ from the infinite substance of God. They are one with him and these Three are One God.

The knowledge, the thought, the science of God being his own Son, as infinite as himself, it follows that God knows everything. In his own unchanging eternity, he sees all things, the past, the present, the future. In man and angel the thoughts, the sciences, and the knowledge they possess are but modes of the mind, modifications or accients of their created reasons. But in God his knowledge is his own divine substance, thinking and generating his only begotten Son. Man can see with his mind but one thing at a time. But God sees all at the same time in his own eternal Reason his divine Son, whose brilliant perfection transcends in an infinite way all creatures and reflects back in the Deity in eternal scintillations all created perfections, for they were all made after him, their divine Model. Man, in reasoning, seizes one truth, then another, compares them and draws a conclusion. The angels grasp at one and the same time both principle and conclusion. But God, being a supreme reasoning essence, the very source of all truth, he sees all, knows in an infinitely wise way, and holds all at once in one almighty grasp. He never forgets or learns anything new, for from old and in the depths of his eternity, he knew all things, and he held all in the measureless perfections of his own infinite, boundless, reasoning, thinking essence.

The objects of the knowledge of God are manifold. He, alone the eternal mind and ever reasoning substance, he ever knew himself in the most complete and perfect manner, and that knowledge is his only begotten Word, his Son. In that Son, his infinite Reason, he sees the reasons and the natures of all things, created or possible. For the Son is a universal Plan according to which all things were made. But besides these created things, composing the universe, the Son also contains the specifications, reasons and plans of infinite numbers of worlds, of creatures, of things not made, the designs of which still rest among the infinite possibilities of God's almighty power.

God being infinite in all respects, he is also infinitely wise. He knows all things, the past, the present, and the future. He sees the thoughts of men, the badness of demons, the loss and destruction of souls, the sins and virtue of men, and whatever each creature will do, because he is infinitely wise. But as reasonable beings we are free agents, we can do what we wish, although God foresaw all this before our birth. For the Deity, being the most perfect Being which can exist, nothing new can come into his mind, because that

would increase his knowledge, which is already infinite, and which therefore cannot increase. Besides all live, move and have their being in God. And he knows what takes place in creation, for he is present everywhere. If he did not know all which will take place in future among his creatures, how could he by his holy providence direct individuals and nations, or govern all by his sweet dominion? All this is called the foreknowledge of God. But some small minds cannot see how we can be free in our acts, when God foresees what we will do. The cause of this is because they do not distinguish between the certainty of a thing and its necessity. For the laws of nature ruling creatures below man and angels, these laws of nature are necessary. Nature produces its effects by necessary and unchanging laws. But the acts of reasonable beings are certain but not necessary, for they are free in all their reasonable acts. God being boundless and infinite Wisdom, he foresees what free and reasonable creatures will do, whether they will do good or evil, and still he leaves them free. Thus he foresaw that I would pen these words to convey my meaning, and instruct the reader, although I could have chosen other words or I could have never written this book; still I am free in writing or in resting.

Some think that God foresees the acts of free beings by his decrees predetermined from eternity, others that he sees all in his infinite Word or Thought, the Son; more say that he sees them in his own present eternity, while a few writers think he knows what happens by the necessary laws of nature ruled by the primary principles and causes which are in him, and that he foresees the free acts of reasonable beings by his supreme knowledge of liberty and free-will. But we can only say with St. Augustine, that the way God foresees all is so wonderfully above our own feeble way of foreseeing things, that we cannot understand it any more than we can understand the infinite God. But it is useless and unnecessary to fall into the errors of those who believe so foolishly in predestination. We may sum it all up in saying that God knows and forsees all, and that men and angels are free and have authority over their acts, and God takes not away their liberty although he foresees what they will do.

The animal sees by means of the images in the eye and by the images of material things in the imagination. The mind sees by the idea in the intelligence, but God sees all things by his Son. For what the idea is in the created

mind the Son is in the increated mind of the Father. The Son being the Wisdom, the Word of the Father, so the Son as God's Wisdom is infinite in every respect. Therefore God knows and sees all things in an infinite way, and by the divine Word.

As the infinite contains all finite things, so eternity contains in an eminent degree all time. As God is the only real Infinity and Eternity, so all things exist, arise in and take place in him. He therefore containing all, sees all, the past, the present, the future of creatures; this existence acts; life, modifications, perfections, all flow from him, and he forms and knows them before they happen and take place. Thus no one can deny that nothing can be secret or hidden from God. But not only does he know all things, but his divine will directs all nature in its acts. He holds the whole universe in his almighty hand.

The will of God is always fulfilled regarding himself, and regarding all the acts of unreasoning nature below man. But his will is not always carried out by reasonable creatures. For these having free will and being masters of their own motives and acts, they are free to fall away from the divine will. That is sin and wickedness. The perfections of the divine will are seen in the regularity and order of creation and in the laws of nature. Even when God wishes such and such acts to be performed by free agents, they do as he wishes. For he enlightens their reason by his grace and shows them the right way, so that they may always do his holy will, although they are free in doing so. We have an example of that in the case of the prophets, who announced long beforehand the amazing design of redemption of the human race and other things relating to the coming of Christ.

But some things God wills with a condition attached, and these are not always done, because created reason does not always follow the divine will. Therefore it follows that God is most free regarding his designs upon all creatures. He was free in creating and he made this world as he saw fit. He could therefore have made a more complete and perfect world than this one which he freely brought from nothing.

Regarding the redemption, God desires the salvation of all men. For Christ died for all the members of Adam's race, and he desires the redemption of all men without a single exception. If men are not saved it is their own fault. They do not obey the divine command, and come and draw from the exhaustless founts of the Saviour, such as he left in the Church, to be given out without money and without price to

all who are humble and come back to God their Saviour.

Joy and happiness infinite are in God's will, for they arise from the possession of the good. The Good in God being the Holy Spirit and the latter being also infinite, it follows that God is infinitely happy. God being infinite and immeasurably perfect, and the perfect always inspiring love, the Love of God is his Holy Spirit and the infinite happiness and joy of God are caused by the generation of his eternal Son and Spirit, the Knowledge and Love of his divine nature, generated and proceeding from his eternal thinking and loving nature and essence.

Hate, anger, desperation and all the other human passions are not really found in God. We speak of them as being in him only in a metaphorical or figurative sense, as we find them in ourselves. The Deity, therefore, having only a mind and will, no passion is found in the divine essence.

The perfections of the divine will are omnipotence, justice and mercy. God is omnipotent, that is he can do everything. God can do anything that is reasonable. But he cannot do that which is contrary to reason, as to make $2\times2=5$ or a square circle. Neither can he sin, or lie, or do anything wrong, for that would be an abuse of reason. He could have made different laws for the guidance of nature, but now that he established those laws in dealing with creatures he acts according to them. Yet he could at any time change, or modify, or suspend them so that they would not produce their effects. That is a miracle, and history tells us that it has often taken place.

God is the only Creator. Man or angel cannot create, that is make a thing from nothing. Man can in a measure imitate creation by making things from other materials already existing, or by using the forces of nature for his own purpose. Yet no one but God can make a thing from nothing. That is a real act of creation.

Being the Creator, Preserver and Ruler of all things, to him alone, or to his representative belongs to give health and happiness or to take life, when he in the counsels of his eternity sees fit. Therefore it is senseless to murmur against God for any miseries which fall upon us, either through the laws of nature or by any direct act of God. For the providence of God rules and directs all things. The history of the human race displays the most surprising designs of the Deity over races and over nations, as well as over individuals. There is a deep philosophy in human history for the student who reads with an enlightened eye.

The science of God relates to the supreme principles of reason, while his wisdom guides creatures to their end. In the administration of creatures he displays the most surprising wisdom, although that is not seen at first by men's sight. He is infinitely just, and punishes and rewards all according to what they deserve.

God is infinitely good, for his Goodness is himself his Holy Spirit. All he does for us is for our greater happiness. His goodness towards his creatures is called his mercy. Being in and by his Son eternal Truth, he cannot deceive either by himself or by those through whom he teaches the human race.

Every one should fulfil the holy will of God while on this earth, as it is fulfilled in nature through its laws and in heaven by the holy angels and the blessed who rest with him in peace and ever dwell in the house of the Eternal.

What we have written, therefore, of God is very short and unsatisfactory. But we must stop for want of space. Now we bid good bye to the reader till we begin another work still farther describing the works of God.

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